

THE  
BRISTOL FLORA



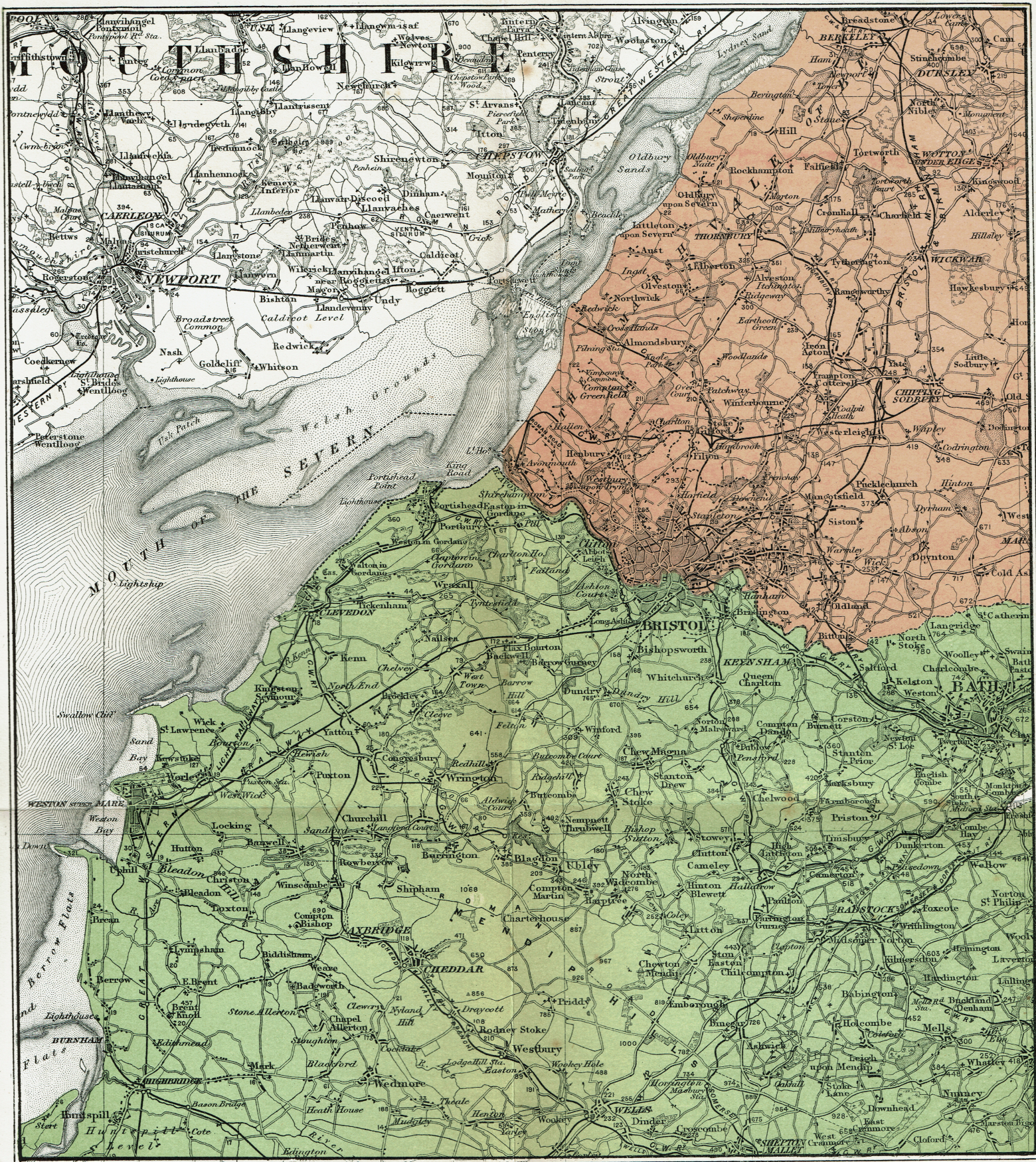
J. W. WHITE



# MAP

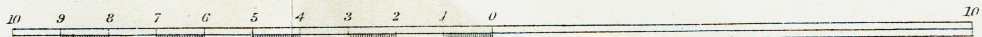
Showing the Area of the District.

PINK .. DIVISION G  
GREEN .. S



Roads, First Class .....  
 .. Second Class .....  
 .. Third Class .....  
 Railways .....  
 County Boundaries .....  
 Church .....  
 Site of Battle ..... 1643

Scale of Four Miles to One Inch 25:446



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Andrie S. Fitzjohn, 1962.

THE FLORA OF BRISTOL







THE  
FLORA OF BRISTOL

BEING AN ACCOUNT OF ALL THE  
FLOWERING PLANTS, FERNS, AND THEIR ALLIES  
THAT HAVE AT ANY TIME BEEN FOUND IN THE DISTRICT OF  
THE BRISTOL COAL-FIELDS;

WITH INTRODUCTORY SKETCHES  
OF THE  
TOPOGRAPHY, PHYSICAL FEATURES, CLIMATE, ETC.,  
OF THE DIVISIONS INTO WHICH THE AREA HAS BEEN DIVIDED;  
NOTES ON THE ORIGIN OF THE FLORA;  
THE DISTRIBUTION OF LOCAL RARITIES AS AFFECTED BY ROCKS AND SOILS;  
AND BIOGRAPHICAL NOTICES OF THOSE BOTANISTS WHO HAVE ENGAGED IN BOTANICAL  
RESEARCH AT BRISTOL DURING THE PAST 350 YEARS.

BY  
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in the University of Bristol.*

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ILLUSTRATED WITH THREE PLATES AND A MAP.

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1912



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## P R E F A C E

THIS book is the outcome of an ideal hobby, cultivated in the spare moments of a business career. It is not too much to say that my love of botanical pursuits has brought me health, friends and recreation, with a host of delightful experiences that have amply compensated for the harassing cares of an exacting occupation ; and, moreover, has rendered the collection of material for the following pages a congenial labour.

More than thirty years have gone by since, at the instance of the Bristol Naturalists Society, I began to compile an account of the local flora which, in its completed form, was published by the Society in 1886. At that period I had not long been a resident in the city ; had but an elementary knowledge of plants ; and could afford only the smallest amount of leisure for study and investigation. The result was an inadequate sketch of the phanerogamic vegetation of perhaps the richest botanical area in Great Britain ; but it was received more kindly than might have been expected and, I believe, has served its purpose fairly well.

During the years that succeeded, field-work was continued with increasing zest as additional time became available ; the district has been much more thoroughly explored ; herbaria have been searched for local examples ; and libraries ransacked for recorded observations of former generations of botanists. Real and general progress in tracing the distribution of flowering plants around our city has, in fact, resulted. In obtaining material for a History of Bristol Botany from the earliest times



no literature likely to throw light on the occurrence of Bristol plants in bygone ages has been knowingly neglected. It may be deemed that the two years given to this task were well spent in placing on permanent record all the accessible data relating to a most interesting subject. As regards the body of the work, the long delay in publication cannot be regretted, since it happened that the last two or three years proved more profitable in discoveries than any previous period. To strive for finality in such an effort would, of course, be futile; for imperfection is of the very essence of the undertaking. This is but a product of the industry of one lifetime. The keener eyes and clearer brains of the next generation may be trusted to raise the work to a higher level.

No pains have been spared in sifting and verifying the enormous mass of alleged facts that have been reported during the extended length of preparation. Every scrap of promising information that lay outside the writer's personal knowledge has been investigated, often at the cost of a day's excursion to some outlying hamlet, and at the risk of offence to kindly correspondents whose unsupported statements could not be accepted. The oddest notes are sometimes sent in. Perhaps the most comical in my experience informed me that *Linnæa borealis* grew on a cricket-pitch in West Gloucester! The plant turned out to be the Bog Pimpernel. But what a *cricket-pitch*! Still, this was not such a very bad shot for a school-girl who had never seen either plant, and had no guide but the little cuts in *Bentham*.

While scientific accuracy has been a primary aim, this book has not been written solely for the practised botanist. I have endeavoured to make it interesting and serviceable to those good people—and their number is considerable—who love wild flowers in a cursory, superficial way; and, it may be supposed,

would willingly learn more respecting the natural riches that surround them. I earnestly hope that, among some of these, existing inclination for deeper study may be stimulated; and that a few, at least, may develop into ardent field-botanists, competent to take up and hand on with credit the charge that is being laid down. To this end occasional irrelevance has been preferred to the withholding of facts or suggestions concerning local plants if these were thought likely to be instructive in any degree. Surely there can be nothing in literature less attractive and satisfactory than a bare list of plant-names and localities with scarcely a line to enliven its dreariness from beginning to end!

Four local plants of especial interest that are not at present figured in British Floras are illustrated on three plates.

That which should have been a pleasant duty—the acknowledgment of assistance rendered by other botanists—has been lamentably saddened by the decease, whilst these pages were passing through the press, of an esteemed and honoured friend, David Fry. Almost every page of this book testifies to the invaluable help he afforded during the whole course of its preparation. Such satisfaction as I might have felt on completion of the work is in great part nullified by my inability to place it in his hands.

Grateful thanks are once more proffered to my old comrade, Cedric Bucknall, in whose company I have travelled and herborized over many thousands of miles at home and abroad. His co-operation has proved throughout of inestimable service.

To Mrs. Gregory, the Monographer of British Violets, I am especially indebted for great kindness, both during her residence in the district and since her removal to Cambridge. The Misses R. E. and F. I. Cundall, Miss M. A. G. Livett and Miss I. M. Roper have, for years past, given me trustworthy and



energetic help. To the last-named lady I owe much, not only for field-work, but for assistance in literary research and in revision and correction of the press. My thanks are due also to other friends and correspondents in various parts of the district who have courteously answered inquiries and placed their notes at my disposal, and whose names will be found attached to their respective contributions. The Rev. E. S. Marshall stands among my benefactors at the head of the expert botanists of the country whose aid—invariably given with cordial goodwill—has been sought in matters of difficulty. His critical knowledge has been drawn upon on many occasions, and his notes on plants in the southern portion of our area have proved especially valuable.

Lastly and principally, I would express gratitude to my wife for her toleration and sympathy while my time and attention were largely absorbed in this compilation.

JAS. W. WHITE.

CLIFTON, *March*, 1912.



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# THE FLORA OF BRISTOL

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## INTRODUCTION.

### AREA, DELIMITATION AND DIVISION OF THE DISTRICT.

THE tract of country around Bristol to which this *Flora* relates is that defined by the late William Sanders, Esq., F.R.S., in his geological *Map of the Bristol Coal-Fields and Country Adjacent*. Chosen originally as an essentially natural area, well suited for local research in botany as for other branches of natural history investigation, the district is yet of necessity bounded in part by arbitrary and artificial limits. In shape it is irregularly a right-angled triangle, with a truncated apex on the north a little more than six miles wide, from the Severn shore above Berkeley to a point two miles N.E. by N. from Dursley. Thence, due south, a line is drawn along the western edge of the hill country—a prolongation of the Cotswolds—that terminates at Charmy Down and Lansdown by Bath; and passing a short distance east of that city, is continued so far down as the outskirts of Frome. From that point the southern limit is traced due west to the Bristol Channel at Huntspill. On the west—the longest side of our triangle—the Channel and the Severn Sea form an entirely satisfactory boundary. From north to south the district measures thirty-six miles, and is thirty miles from east to west along the base of the triangle. Its superficies may be computed, roughly, at 720 square miles; an area about equal to that of an average-sized English county, and corresponding, say, to Worcestershire, Oxfordshire, Bucks, or Berks. About one-third of this area lies in the Watsonian vice-county of West Gloucester; the remainder in that of North Somerset.

It has not seemed desirable to parcel out the area into a number of botanical districts which at best would have been largely artificial, whether the attempt were based upon river drainage or upon geological formations. The only division employed, therefore, is



that made by the boundary between Gloucester and Somerset, which, save for a short distance, follows the course of the Bristol Avon. The two counties are designated throughout the book by the initials G. and S. respectively.

### TOPOGRAPHY OF BRISTOL AND THE VICINITY.

The City of Bristol lies at the confluence of several valleys, in a basin formed by the fall of elevated tablelands on the west, north, and east; and by the slopes of Knowle and Totterdown under Dundry Hill on the south. Some of the ancient parishes, notably Temple and St. Philip's, are situate on alluvial lowland deposited by the Avon, and are not more than twenty feet above mean sea level, although the mouth of the river is quite seven miles distant by water. But the increasing population has by degrees extended up the surrounding hills and on to the high ground in all directions, so that the modern city with its suburbs has a radius of several miles.

Fortunately, however, the local flora has not greatly suffered from this invasion by the expanding city of the land around it. Our rarer plants are very generally confined to precipitous rocks, with adjacent stony slopes and broken ground, unfit for cultivation or for buildings. And the more important habitats are in localities which, like Brandon Hill, the Observatory Hill, and Clifton and Durdham Downs, are now devoted as open spaces for the use of the citizens for ever. Still, the malign influence of extension of bricks and mortar should not be underrated, even if more potent for mischief in other districts than in our own. The growing populations need not only more housing but more food. So the outlying meadows and pastures are at first ploughed and used for allotments or market gardens before being taken over by the builder; and as this process continues, large tracts of once wild country, with its pertaining vegetation, become lost to the naturalist. Moreover, in the vicinity of a large town the ample hedges and broad roadside wastes of old time tend to disappear, and the odd corners and "headlands" of fields are more closely cultivated. Even the herbage on the hedgebanks in our lanes is now chopped and trimmed for tidiness, lest rude uncultured wild flowers should offend the eye!

Rising on the west, in Somerset, beyond the Docks and the great Bedminster district that ends at Ashton Gate, we have a limestone ridge or plateau (300' to 400') which comprises practically all the continuous high ground from Clevedon to the Avon below Bristol. Upon it stand Leigh Woods, with most of Ashton Park and Failand;

its northern flank being limited by a belt of Old Red Sandstone that crosses from Failand Hill by Abbotsleigh to Cook's Folly and Stoke Bishop.

On the north of the city, by steep acclivities (Clifton Hill 237') we reach the broad tableland of Clifton, Redland, and Montpelier, which stretches from the Gloucestershire cliffs of the Avon Gorge eastward by Kingsdown (220'), and Ashley Hill, to the Frome under Pur Down and Stapleton. To this northern plateau, on its western side, belong the Observatory Hill (315'), with the historic St. Vincent's Rocks, and Clifton and Durdham Downs (312'), all overlooking the tidal Avon in so picturesque a fashion that Clifton's river scenery will be famous for all time.

The Avon Gorge retains an unrivalled charm, although the prospect from the Downs is marred by huge and hideous quarries opened on the Leigh side, with a consequent destruction of the exquisite hanging woods. Here, in the words of Southey's satire, Bristolians are still content to "sell the sublime and beautiful by the boatload." On the Clifton side all quarrying has happily come to an end, and Nature has already begun a process of reparation for the benefit of future generations long years hence.

The Downs have become main breathing spaces for the inhabitants of our big city. They continue to present, in early summer especially, a scene than which few fairer can be found; but their character has entirely altered during the last few decades. The golden gorse-covered and heathy commons of our fathers have completely vanished under the trampling feet of growing crowds. Many of the smaller hawthorns and hollies are being destroyed without hope of replacement, for no seedling or sapling has the remotest chance of raising its head under the hoofs of the gallopers; and wide stretches of bare turf have ceased to show any sign of the characteristic vegetation with which the Downs at one time abounded. At the present day those interesting plants must be looked for on rocky ledges, scree, and slopes for which the golfer and footballer have no use. Even furze is now banished to the edge of the cliffs, where a protecting fence gives security alike to its bushes and to the wandering visitor. Such changes as these are of course inevitable, and are natural developments that have to be accepted. Not so the working of a destructive and ignorant spirit in high places, which once or twice has compassed the removal of all undergrowth from the "Green Valley," and the "Gully," when the glorious beauty of clematis, brambles and wild roses trailing amid the trees was entirely swept away. The outcry that greeted this



maltreatment has prevented a repetition of the mischief, but some of the roses never reappeared. In face of all this it is most refreshing to observe how the original herbage will reassert itself in spots kept free from intrusion. A few small enclosures near Sea Walls have been planted with shrubs and trees foreign to the locality, and in the shelter afforded by the netting that surrounds these feeble attempts at landscape gardening, tall Dropworts can now be seen, with splendid clumps of *Hippocrepis*, Hairbells, and many limestone grasses, of which no sign is visible on the worn, trodden waste outside. Enclosures of the kind are welcome, therefore, though the plantations may ultimately fail.

From the verge of Black Rock, commonly called the Sea Walls, a magnificent panorama is obtained that includes the Channel and Welsh hills. If we turn southward around the head of the Gully—a miniature mountain ravine that leads to the riverside and is the home of many floral rarities—we pass along the top of the Great Quarry with its handsome fringe of furze, and through the children's "Fairyland" to a dip—a "Triassic creek"—filled with Dolomitic Conglomerate, remarkable for the extreme size of the component blocks. Along the course of this dip descends the Bridge Valley Road to Hotwells. From its entrance we look up the gentle slope of "The Promenade" on Clifton Down, one of the most lovely spots conceivable at any season of the year. On the right of its avenues the glade of the Green Valley marks a dislocation of the rocks known as "The Great Fault," where the strata have been displaced vertically to the extent of 800 feet. Here the towering limestone mass of St. Vincent's Rocks is succeeded for a short distance by Millstone Grit, shales, and the conglomerate already mentioned. Corresponding to this disturbance, the flora takes on a surprisingly changed character; the wealth of Rubi in particular (a group remarkably shy of limestone) within the space of a few yards being extraordinary.

Breasting a final ascent to the swarded Observatory Hill and the cliffs of St. Vincent's Rocks, the beholder comes under the spell of a scene of romantic beauty, the crowning glory of Clifton, and a theme of admiration with some of the most famous writers in the English language. The cliffs, although not of wide extent, have a sheer fall of about 300 feet to the riverside. Their vegetation is luxuriant, and the ledges are crowded with rare xerophilous species, mingled with a few hardy survivors from some ancient herb garden. The singular aggregation of good plants in a small area upon these rocks is comparable only to the like remarkable floral richness of



Cheddar Gorge. The series of plants, however, that occur in the two geologically similar localities differ widely from each other. It should be noted that not all the Avon Gorge rarities grow together on St. Vincent's Rocks as properly defined, but that several of the choicest have their stations on Clifton and Durdham Downs. One sometimes hears the whole range as far as Sea Walls spoken of as "St. Vincent's Rocks," but that idea is incorrect.

An aberrant latter-day practice on the part of persons who think it well "to paint the lily and gild refined gold" is causing some uneasiness. These victims of a false enthusiasm have unfortunately selected the vicinity of St. Vincent's Rocks as ground suitable for the introduction of alien plants, several of which are becoming established on a small and precarious scale. As recently as March of the present year (1911), an individual was observed on a wet morning to be furtively scattering a bagful of seeds around the Observatory Hill. It seems likely, however, judging from published utterances, that these people may be generally ignorant of the conditions necessary for the success of their operations, and that they will overlook certain important factors. Possibly, therefore, the seeds chosen were of some calcifuge species—Foxgloves, for example—which would be unlikely to give any return for the attention bestowed upon them.

The flat-topped ridge of Bristol's northern boundary extends from the Downs in horseshoe fashion to Westbury-on-Trym, and passes along Henbury Down, Blaize Castle, and Kingsweston Down, to end at Penpole Point. Still farther to the north, at a greater distance from the city, another horseshoe range of upland limestone, facing southward, forms a containing rim in which Coal Measures lie. It runs from Almondsbury and Alveston through Tytherington, Cromhall and Wickwar, by Yate Rocks to Chipping Sodbury and Wyck. On the outer side of this range is a belt of Old Red Sandstone, succeeded towards our northern limit by Silurian rocks with Trap. The outcrop of these formations breaks up the surface of the country between Charfield, Tortworth, and Berkeley, and produces the most pleasantly diversified scenery to be found between the eastern escarpment and the Severn. Rambles that are never-failing pleasures can be taken in the neighbourhood of Cromhall, Tortworth, and Falfield; and the flora is of a most interesting character. Occupying the interior of the northern horseshoe just described is a large area of Pennant Grit, surrounded by New Red Sandstone and flanked by Lias Marls. These form an irregular plateau of high land, with an average elevation of about 180 feet, extending



from beyond the river Frome on the north-east of Bristol, to the cliffs which bound the Avon at Conham and Brislington. The Pennant is the chief sandstone rock of our northern division, and occurs also to the southward in the Somerset Coal Measures at Clutton, Pensford, Nailsea, and Clevedon. It is of enormous thickness, and of commercial importance in furnishing a very large proportion of the building stone used in the district. Containing the sites of many coalpits, with their accompanying spoil heaps, it presents few picturesque surface features, save where, in the valleys of the Frome and Avon, the rock has been cut through by long-continued erosion of the streams. Such spots there are in Glen Frome at Frenchay and Stapleton, and between Crew's Hole and Hanham, delightful river reaches where the valleys narrow to steep-sided glens, beautifully terraced and wooded, and where the air is resonant with the notes of song-birds, and many plants of special interest have found a congenial home.

The Lias occupies at least two extensive areas in the immediate neighbourhood of Bristol. Within them the surface of the ground is slightly undulating, or presents flat-topped ridges and knolls of moderate elevation laid down to farm-land as permanent pasture, with frequent orchards, oak woods and coppices. The formation is in evidence about Horfield, Patchway, and Eartheott on the north; and at Whitechurch, Keynsham, Norton Malreward, and the base of Dundry towards the south. On the east we find Lias filling the valleys among the Bath hills; and the conspicuous outlying knolls of Glastonbury Tor and Brent Knoll are partly formed of this rock.

Outcrops of freestones, *e.g.* Bath Oolite and Inferior Oolite, with Fuller's Earth, etc., are specially abundant in the neighbourhood of Bath, and constitute most of the hill country on the east of the district. They afford a vegetation of varied character and occasionally of decided rarity.

Chalk is entirely absent from the district.

## GEOLOGY.

The various strata that build up the district will be found mentioned in the accompanying topographical sketches. In the main, the formations are clearly indicated by their surface extensions or outcrops; and there should therefore be little difficulty in grasping the broader geological features of the Coal-fields and the country in immediate contact with them. No sufficient reason

appears for attempting to treat the subject here in any detail, since the literature of Bristol Geology is unusually full and can readily be consulted. Those readers who desire to study closely the more complex problems presented by the rocks of the neighbourhood, may well be referred to the lists of publications, essays, etc., quoted by Professors LLOYD MORGAN and S. H. REYNOLDS in their *Sketch of the Geological History of the Bristol District*.\*

## ELEVATION AND SURFACE.

The surface of the Bristol Coal-fields is almost entirely comprised within the lowest of Watson's Climatic Zones—the Infer-agrarian—which embraces all the lowland country of southern England, and is the tract of *Clematis* and *Rubia*. The rounded mass of Blackdown on Mendip, with a little adjoining moorland, alone rise to over 1000 feet, and form the nearest approach to mountain ground within the district.

The dominating hill-range is that of the Mendips, about 34 miles long and several miles wide, stretching east and west across North Somerset, and occupying, with its many spurs and outliers, about a third part of our Somerset division. The characteristic geological formation of these hills is the Carboniferous or Mountain Limestone. To this rock is due most of the picturesque features of the district scenery, not only on Mendip but elsewhere. It is alone conspicuous in the ravines of the Avon, Blaize Castle, Ebbor, and Cheddar: the beautiful combs of Bourton, Brockley, Harptree, Burrington, and Mells: the crags and crests of Cleeve Toot, Callow, Crook's Peak, Bleadon, and the Channel headlands: and it gives us as well the fine outlooks from Tytherington, Almondsbury, Wyck, and Penpole Point. A peculiarity of the formation is the scarcity of visible streams. The Mendip rainfall finds its way almost entirely underground through natural fissures, galleries, and caverns, issuing forth at length in considerable volume near the foot of the hills, as at Wookey Hole and the outflow of the Cheddar Water. The stalactites of the world-famed Mendip caves are doubtless the most beautiful in the kingdom. By long-continued action of rain and frost, and by attrition of the waves in periods of submergence, so much of the overlying load of secondary rock on Mendip has been removed, that in a few spots the whole of the Mountain Limestone has disappeared, and the more ancient Old Red Sandstone now

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\* *Proc. Bristol Nat. Soc.*, 1909.



stands at a higher elevation than any existing part of the formation which once lay over it. Thus it has come about that Blackdown, the highest summit of the hills—1068 feet above mean sea level ; Pen Hill, above Wells, and the Nine Barrows, near Priddy, both of which just touch 1000 feet, are all on the older sandstone. At one point on the range, to the north of Doulting and East Cranmore, there is a considerable bed of igneous rock. With these exceptions, the whole of the Mendip tableland, some 40 to 50 square miles in extent, with an average altitude of at least 800 feet, is Limestone—the broad stump of old-world mountains whose peaks have been removed by denudation. This Mendip high ground was once the seat of a great mining industry, the remaining vestiges of which are distinct and ineffaceable in the parts about Shipham, Charterhouse, and Priddy. Although now mostly enclosed or under cultivation, the region is so sparsely populated at the present time that it gives a sense of extreme loneliness and desolation. Here and there around the edge of the hills are beds of Dolomitic Conglomerate, variable in texture, but in some cases furnishing a splendid building stone. Such a material is obtained at Draycott in the Cheddar Valley, and has been used in the construction of the Bristol Joint Railway Station, and of the stations on the Cheddar Valley line. Still lower down, along the skirt of the hills, are broad deposits of Red Marl. Seen from a distance, this range possesses a remarkably level and somewhat monotonous outline, very little interrupted except where the line is broken by the magnificent gorge of Cheddar. The hills are fairly well wooded on their northern slopes, in contrast with those facing south, where in many places bare rock protrudes and the cliffs are footed by loose stones. The hill vegetation on this side is of the natural pasture type upon a very shallow soil.

A few of the secondary hills and outliers belonging to the Mendip system stand as follows, with their height in feet :—

	Feet.		Feet.
Maesbury Castle - - -	968	Wavering Down - - -	690
Beacon Hill - - -	954	Dolebury - - -	500
Eaker Hill - - -	953	Sandford Hill - - -	420
Callow Hill - - -	800	Worle Hill - - -	357
Shuteshelve - - -	763	Brean Down - - -	321
Crook's Peak - - -	628	Banwell Hill - - -	318
Bleadon Hill - - -	549	Steep Holm - - -	256

The island-hills, or isolated knolls—Glastonbury Tor, Brent Knoll, Wedmore, and Nyeland—that rise here and there out of the levels, are curious features of the alluvial plains at the foot of the Mendips.

Chief among Somerset hills in the near vicinity of Bristol are the Dundry ridge (768'), Maes Knoll (654'), Potter's Hill (664'), Broadfield Down (641'), the Failand plateau (537'), and Ashton Tump (423'). With the exception of Dundry, these are irregularly disposed heights and prominences that present no striking feature to the eye.

Kelston Round Hill, with its crest of trees, although the elevation (712') is not commanding, is a very conspicuous landmark in the Avon Valley towards Bath. Bath itself is sheltered by much high ground. On the south and east of the city steep slopes rise to Odd Down (550'), Combe Down (588'), and Hampton Down (672'); but Charmy Down and Lansdown, on the north, overtop the whole.

Lansdown Racecourse (780') may be taken as the starting-point of the great oolitic escarpment that trends northward along our eastern boundary, and is to that portion of Gloucestershire what the Mendip range is to the Somerset division. From its ridge we can overlook a wide breadth of the valley of the Severn, and the coast of Wales beyond. Maintaining an average altitude of about 600 feet for fourteen miles or so, the ridge finally merges into the main mass of the Cotswolds at Wotton-under-Edge and Dursley. These little towns are barely three miles apart, but the country between them is the most broken in the district. To go on foot directly from one to the other would necessitate a climb over Wotton Hill (600'), and after passing through Westridge Wood and dropping thence into Waterley Bottom, an ascent of Breakheart Hill (657'), before a glimpse could be had of Woodmancote and Dursley lying in the shadow of the still higher bluff of Stinchcombe (698'), which stands immediately on the west overlooking the fertile Vale of Berkeley, and adding much to the beauty and impressiveness of the scenery.

Minor eminences on the Gloucester side of Bristol are :—

	Feet.		Feet.
Pucklechurch - - -	413	Kingsweston Down and Blaize	
Westerleigh Hill - -	377	Castle Hill - - -	300
Bury Hill, Yate Rocks -	344	Pur Down - - -	296
Milbury Heath - - -	353	Trooper's Hill - - -	250
Tytherington Hill - -	300	St. Vincent's Rocks and the	
Alveston Down - - -	325	Downs - - -	300 to 320
Almondsbury - - -	292		



## COAST.

A glance at the map will show what an extensive coast-line the district possesses, on probably not less than 50 miles of tidal water, if inlets and promontories be included. The shore of this coast-line varies a good deal in different sections, but is, generally speaking, flat and featureless. A continuous tract of grazing land from one to three miles wide—reclaimed salt-marsh for the most part, and much of it below sea-level at high tide—fringes the left bank of the Severn from Berkeley down to Avonmouth. It is interrupted only for a short distance in its central portion by the escarpment of Aust Cliff. These Severn flats lie on Alluvium and New Red, and are protected from tidal inundations by embankments and sea-walls which are raised to an exceptional height around the mouth of the Severn Tunnel and its approaches. A short distance below that point we find the only maritime beach of shingle that occurs in Gloucestershire. Of late years this has been augmented to a length of three-quarters of a mile by material excavated from the Tunnel. Although swept by the waves from time to time in storms, the beach continues to sustain a few psammophilous species of local value. Then comes an expanse of grazing ground and mud flats outside the sea-banks, and so below the level of spring tides. Having no protection, this maritime pasture is continually breaking down and being washed away. No important vegetation is to be found upon it; it is botanically poor. But on the sea-bank faces, and in the brackish pools that lie below, we get many interesting species that are peculiar to such situations, and these become increasingly frequent as we travel southward towards the open sea.

At Avonmouth, the great modern extension of docks, enclosures, and building operations has obliterated the botanizing grounds that lay adjacent to the river mouth and to the old rifle range above it. From these and kindred causes our northern division is the poorer by loss—actual or impending—of several species, *e.g.*, *Althæa officinalis*, *Eryngium maritimum*, *Limonium vulgare*, *Statice Armeria* and *Obione portulacoides*, plants that had pushed their stations thus far up Channel on to the Gloucestershire Severn bank. Before these destructive developments took shape, ill-drained salt marsh and brackish ditches extended up the Avon estuary as far as Lamplighters and Shirehampton village. Reference to Swete's *Flora* will show how many good plants could be obtained from "Shirehampton Marshes" half a century ago. But improved

drainage and the circumstances of the locality have changed the surface character of this area by largely removing the productive pools and ditches to which our predecessors resorted.

On the Channel shore below Avonmouth, and again below Clevedon, we get more stretches of alluvial farm-land sheltered behind embankments, with outer flats open to ingress of the tides, and broken here and there by "pills" whose broad steep slopes of slimy mud seem disproportionate to the amount of water that drains down them from inland sources. Variety is afforded to an otherwise monotonous coast-line by the headlands of Carboniferous Limestone that stand out at Portishead, Clevedon, Sand Point, Worlebury, and Brean Down; while away in the Channel the two rugged islands of Denny and Steep Holm belong to the county of Bristol. Between Portishead and Clevedon the low cliffs and beach are of Rhætic formations. The first sand appears in Kewstoke Bay, between Sand Point and Worlebury, to be succeeded by the sands of Weston-super-Mare. Beyond Brean Down a seven-mile line of beach and sand-dunes extends to the mouth of the Brue, near Burnham. In Kewstoke Bay (and the same applies to Weston also) the land has gained upon the sea to some extent, and the old coast-line of sand-hills is enclosed and converted into pasture. At Berrow the dunes are about half a mile wide, and form an effective screen for the great tract of low-lying grazing land behind them. The foreshore hereabout, the sand-hills, and the adjacent sward that lies between them and the parallel coast-road running from Brean Down to Burnham, all provide good and instructive botanizing of a general sea-coast character, with an addition of certain species peculiar (so far as this district is concerned) to the particular locality; while nearer the town, at the southern extremity of the dunes, many weeds of cultivation and some garden stragglers find the loose sand suitable to their requirements. A few of the deeper dune-hollows contain fresh water, confined by the alluvial clay on which the sand-hills rest, and these sheltered spots possess a special paludal flora that includes two or three of our choicest rarities. The largest marsh of the kind, known locally as Berrow Marsh, has long been a deservedly favourite botanizing ground, as this *Flora* will be found to testify under very many heads. But the greater part of the marsh has lately been drained on behalf of the golfers, and it seems as if, before long, a number of its interesting plants will have been extirpated. On the outskirts of Burnham, building extension, enclosures, and a great growth of golfing have much curtailed the accessible open ground north of the town. It is now



difficult to realize that formerly such plants as *Crambe maritima* and *Elymus arenarius* flourished in the sand around the church.

### WOODLAND.

In ancient times the two great hunting-forests of Mendip and Kingswood occupied very large portions of this district. Such forests had little to do with trees. Perhaps not more than a third was woodland; the remainder consisted of marsh, scrub, heath or down, upon which grew nothing bigger than gorse, broom, or bramble. We are told that the chief timber trees were oak, ash, fir, and immense hollies which, in later days, were cut down to make props for mines and coal pits. The area of the historic Royal Forest of Kingswood, though not among the largest of Royal Forests, was originally of considerable size. It extended, east to west, from the Sodbury hills to the Severn marshes, and southward to Lansdown, Bitton and Bristol. Originally formed by the early Saxon kings, who had a palace at Pucklechurch, it remained an arena of princely sport for more than 1000 years. As king's land a Royal Forest occupied a peculiar position, outside the common law, and governed by special regulations. The Forest-Warden or Ranger was anciently a royal prince or other high personage; and later a king's officer—the Constable of Bristol Castle. Both Kingswood Forest and the great adjoining Manor of Barton Regis, being Crown lands, were at first appendages of the Royal Palace of Pucklechurch, and afterwards of the fortress at Bristol, supplying provisions, forage, and many other wants of the occupiers of those places. In 1228, by a Charter of Disafforestation, large tracts of the original forest were converted into common land; thenceforward Kingswood became a "Chase" and not a "Forest," and so continued until 1631 when Bristol Castle was made over to the Mayor and Burgesses of the city. When the Civil War broke out, a little later, the Chase became a prey to all comers, who killed the deer, cut down timber, opened coal pits, and built cottages with large enclosures wherever they liked. Ultimately, powerful lords of manors and owners of "Liberties" claimed the land, and were successful in filching the whole Chase and Barton Manor from the Crown. So ended, as such, Kingswood Forest. Eventually the whole area was given over to mining and cultivation. Few and far between at the present day are the surviving portions of this aboriginal tract. There remain as samples of the primitive surface and vegetation the Commons of Yate, Sodbury and Siston, Lyde Green, Ivory

Hill, Rodway Hill, a portion of rocky heathy Avon bank between Conham and Hanham, and two or three other scattered morsels west of Mangotsfield. On one of these, near Leap Bridge, we have or had, *Potentilla argentea* and *Orobanche major*. But lately that delightful little spot has been despoiled of its wealth of broom and brambles in an attempt to gain a bit of pasture from the dry sandstone ridge, and so these plants may not again appear.

Quite as complete, though the process of change was doubtless unlike in character, has been the disappearance of the Mendip Forest with its kingly residence at Axbridge; and but little is to be learnt with certainty concerning their medieval associations.

The woodland of the Gloucestershire area in general may still be described as extensive, and some of the larger woods are very beautiful, situate usually on high ground and often covering the tops of the hills. Such are the hanging beech woods over Dursley, and those extending from Wotton Hill to Nibley Knoll. These have a rich flora which will be noticed later on. Undeniable, too, is the sylvan charm of the hill slopes about Sodbury, Dyrham, Horton, and Hawkesbury, that are indented here and there by combes or narrow valley-heads, locally called "Bottoms," and are as a rule attractively wooded. The great woods near Wickwar, on poor soil of marly clay, have a distinct character; and so, again, have those about Eastwood Park and Tortworth that stand on Silurian and Trap. From the high ridge of Alveston Common the views extend over tracts of woodland on the lower eminences about Tockington, Elberton, and Thornbury, while the woods between Hill and Berkeley appear on the northern horizon. Nearer Bristol, beyond Henbury, are the hilly and picturesque preserves known as Haw Wood and Berwick Wood, with the tree-clad ridge of Spaniorum overlooking the Severn Sea. The woodland scenery becomes still more attractive as the city is approached, and the sylvan loveliness of the Frome Valley at Stapleton and Frenchay, of Kingsweston, Blaize Castle, and Combe Dingle, are fully appreciated by the townspeople.

Crossing the river to the Somerset side we come at once to famed Leigh Woods, a fine forest-like tract that crowns the cliffs and descends to the tideway on the left bank of the Avon Gorge. These woods are the home of a plant community of uncommon interest. They contain nearly every indigenous tree in the country, and offer in consequence a foliage of singularly varied tint, from that of darkest Yew to the pale light green of Lime and Oak, or silver of the Whitebeam. The larger trees grow here on such an insufficient



subsoil that they sometimes put on hues of autumn before summer is half over. The choicest part of this wide and nobly wooded space, with its Valley, Camp, and embowered ravines, beloved of Bristolians and the delight of visitors from afar, now happily belongs to the people of England.

Within the easy limit of a day's excursion lie the Priory Woods at Portbury. The footpath that winds through them leads to other fine woods on Wraxall and Tickenham Hills. Further afield a delightful ramble can be had through unpreserved woodland on the flank of the Portishead ridge as far as Weston-in-Gordano. But the yet more extensive and interesting range of primitive limestone woods, with outcropping rocks and steeply shelving combs, that stretches almost continuously from Backwell Hill to Congresbury and Wrington, is only partially accessible.

The peaceful old-world parishes north of the Mendips, as has been already mentioned, are well supplied with trees. The Elm is perhaps the most characteristic tree of that region, but it is a tree of the hedgerow and open ground rather than of woodland. On steep limestone slopes flanking the Hills are natural woods of Ash and Oak with Yew and Whitebeam, and an undergrowth of Lime, Wych Elm and Hazel, which is commonly coppiced at certain lengthy intervals. At such times the open clearings become wondrously gay with drifts of blue-bells, primroses, red campions, yellow archangel, starry stitchworts and lilac-spotted orchids in profusion. But when it happens that, as in the case of Cheddar Wood at present, no woodman has cut a faggot within the memory of man, the flowers lie dormant, and no gleam of colour breaks the dense impenetrable gloom of the interior. The shallow, porous soil that overlays the limestone is not so favourable to development of the Oak as the moist marl and clay of lower grounds, where this tree attains a much greater size and age. Among the largest and most ancient examples of natural woods in the Mendip region are those of Cheddar, Ebbor, Ham, Asham, Eaker, Compton Martin, Sandford, and Hutton. Many of them appear to be truly primitive, and are doubtless remnants of the historic forest of Mendip. Coniferous trees—Spruce, Larch and Fir—have been introduced on an extensive scale during the last hundred years. The pine plantation near the head of Cheddar Gorge is not yet fifty years old.

## COMMON LANDS.

One of the peculiar features that give character to the Gloucestershire portion of the district is the extent and frequency of its common lands. Rarely, or not at all, in Somerset do we find tracts of ground comparable to Lyde Green, or to the Commons of Siston, Yate, Sodbury, Hawkesbury, and Inglestone. And these, undoubtedly, were far more extensive and numerous a century or so ago, before the last series of enclosures was effected; when, for instance, Engine Common and Yate Lower Common were taken into cultivation. The poor clay soil of such lands is of little value to the agriculturist, but it produces a surprising number of interesting native plants. Of a quite different nature, and of less account botanically, are the elevated limestone warrens of our southern division and the so-called Commons of Downside (Stratton) and Downhead (Cranmore), furze-covered though they be. Still, ample compensation in this respect is provided in Somerset by a fine series of upland grassy downs covered with close turf. These yield to the botanist a variety of important species, while his senses are gratified by far-reaching views, and his energies renewed in delightful bracing air.

## BOG AND PEAT.

There is no true bog in our northern division. And the only Gloucestershire peat that I have seen lies under the alluvium of St. Philip's Marsh, where it was exposed in digging foundations for the Corporation Electricity Works. Ill-drained "peaty" meadows are frequent, but genuine black peat does not occur upon the surface.

In Somerset we have *Sphagnum* bog on Mendip around the spring-heads of rills near the top of Blackdown, and about the Mineries; all on Old Red Sandstone, which holds the water. The fissured and porous Limestone is too permeable to allow the formation of a peaty swamp.

A small layer of peat is found on Kenn Moor at about the centre of the wide expanse of alluvial meadows that extends to the Channel north of the river Yeo, and is known as the North Marsh. Thick peat occurs more abundantly in the Gordano valley between Portishead and Clevedon, where it has been dug for fuel within my recollection. This valley has been subject to drainage about a century, and is now coarse pasture land attached to farms on the adjacent hills. Its watercourses still yield some of the rarer aquatic and uliginous plants.



Much of the southern border of the district lies on the peat moors of the South Marsh, a tract of old lake-land situate between the Mendips and the Poldens. This is a perfectly flat region, except when the uniformity is disturbed by a few detached portions of uplands—small and of low elevation, chiefly of Lias—that rise out of the level. Of these “islands” Wedmore and Meare are the principal. A railway from Highbridge to Glastonbury and Wells runs across the surface, and the main drainage is effected by the river Brue, controlled by sluices at its tidal mouth. The locality is the “Turf Moor,” described by MR. THOS. CLARK in his pamphlet, and the “peat moors” of this *Flora*. The deposits are of great antiquity. Very little of the area now remains in a primitive heathland condition. The black peat—on an average about 12 feet thick—has been dug out in enormous quantity for many years past, and thus the general level of the surface, which originally was no higher than that of the sea, has been still further reduced. Were it not, therefore, for protection artificially provided by sea-banks and sluices at the mouth of the river, the moors would revert to their ancient lacustrine condition, and be subject to occasional irruptions of sea-water at abnormally high tides. Even now the whole area is flooded in times of heavy rain, when the cottagers are obliged to go about in boats.

The Turf Moor is to the naturalist a most fascinating region. Its vegetation is abundant and possesses special characteristics. The primitive heathland plants are becoming rare; but the rhines and hollows left by the turf-cutters support some rich and important plant associations, and provide a host of aquatics, with marsh and bog species, often of decided rarity. Perhaps the most striking secondary feature of the peat moor flora is its peculiarly local character. The good plants are by no means evenly distributed to the extent that might perhaps be expected where the soil and general conditions are throughout so much alike. Every portion of the moors varies somewhat in the nature of its vegetation from the remainder. The following species are apparently confined to quite a small area:—*Thalictrum riparium*, *Lathyrus palustris*, *Helosciadium inundatum*, *Andromeda*, *Menyanthes*, *Pinguicula vulgaris*, *P. lusitanica*, *Carex filiformis*. Others, such as *Peucedanum palustre*, *Wahlenbergia*, *Juncus obtusiflorus*, *J. diffusus* and *Osmunda*, are more widely spread, but still local. And a few actually seem to be restricted to a single enclosure, e.g. *Ranunculus Lingua*, *Utricularia neglecta*, *U. minor*, *Polygonum minus*, *Sparganium minimum*, *Cladium Mariscus*, *Carex teretiusecula*. It follows

that no botanist could claim a personal acquaintance with all the plants which have been observed at some time or another in the locality unless he had looked into every pit and ditch and examined every enclosure on the moors; and that not once but repeatedly—a quite impossible feat. In the case of several of the scarcest species, more than a hundred years have gone by between recorded observations of their occurrence. In my numerous wanderings over these bog lands during thirty years, accompanied often by observers more keen-sighted than myself, I have never met with a single specimen of *Cicuta*, *Oxycoccus*, or *Rhynchospora fusca*, although there can be little doubt that all are still in existence.

In spite of the depressed surface and periodical flooding, this prolific botanizing ground is feeling the influence of human effort in deep drainage; and is being converted, little by little, into meadows for the support of cattle. Reclaimed peat land does not answer for wheat cultivation, but potatoes and oats are sometimes grown.

The western margin, between the peat and alluvium, is marked by vestiges of a former coast-line in the shape of deposits of blown sand (Burtle Sands) which occasion a slight elevation of surface where they occur. That some portion of the Levels was originally tidal is shown too, I think, by the presence of several species bearing the specific name *maritimus*, e.g. *Trifolium*, *Rumex*, *Scirpus*; the sedge, especially, being frequent in ditches now many miles from the sea.

## SOILS.

The character of the soils within the district is not so varied as might possibly be expected from the number of geological formations that can be recognized. Three types of strata determine to a great extent not only the configuration of the surface but also the constitution of the superincumbent earth. From a general ecological point of view our soils may be classified as: (1) Calcareous, over limestones and oolites; (2) Arenaceous, on the Channel coast and over Coal Measures and Devonian rock; and (3) Argillaceous, including marls and alluvial clays. The last-mentioned deposits predominate, and cover a large expanse on the west, south-west, and south, producing fine grazing-land of the richest nature. Good natural pasture rests also on the more elevated New Red marls and clays of the Lias beds that occupy considerable areas near Bath and Bristol. These cold Lias clays, though excellent for dairy



farming, do not as a rule seem adapted for the growth of cereals. Cornfield weeds, therefore, are infrequent, and the flora is a scanty one, especially barren in forms of *Rubus*—a genus that dislikes Lias almost as strongly as it does Limestone.

A stiff, cold clay over New Red, Lias, and Millstone Grit, containing many pockets and bands of selenite and celestine, forms some flat, damp, and unproductive country in the vicinity of Yate and Wickwar, with a florula of the strictest pelophilous character. It is the low-level Alluvium of old marine silt and clay that possesses so valuable and extensive a series of aquatic and paludal species for the enrichment of our flora. The markedly mixed quality of this series may be attributed to the compound nature of alluvial deposits and the presence of a saline constituent in the old marine silt, especially near estuaries. Some species of contrasted preference in soils in their normal situations may be seen in juxtaposition on the alluvial margin of the Turf Moor. For instance, we see growing within a small compass, if not actually side by side, such plants as *Erysimum cheiranthoides*, *Potentilla reptans*, *P. procumbens*, *Epilobium angustifolium*, and *Hieracium umbellatum*; with *Epilobium hirsutum*, *Cœnanthe Phellandrium*, *Sium latifolium*, *Rumex maritimus*, *Scirpus maritimus*, *Carex distans*, and *C. rostrata*.

No such inconsistent mingling takes place with the Sandstone flora. Arenophilous species will grow on their own particular soil or not at all. They form interesting little groups, faithfully adherent to each other in the field; appearing together in those spots only where are found the local conditions they require, and skipping over intervening strata where the soil is manifestly unsuitable. Examples of such species are *Sagina ciliata*, *Lepigonum rubrum*, *Scleranthus annuus*, *Trifolium arvense*, *Ornithopus perpusillus*, *Epilobium lanceolatum*, and *Aira præcox*. Some of these appear on the Millstone Grit of Brandon Hill, and jumping thence to Clifton Down where the same formation crops out for a few feet, pass on to Rodway Hill, Glen Frome, and the riverside Gritstone banks and quarries near Brislington and Hanham. The Foxglove is a more prominent example of a sand-loving species. When we leave the limestone Downs and walk to Cook's Folly Wood we find that this handsome wilding defines the passage on to sandstone as sharply as if the line had been surveyed and pegged.

Eastward of Bristol the Pennant sandstone soil is answerable for a general change in the vegetation. The green meadows, large orchards, thick hedgerows, and fine forest trees of North Somerset are replaced by arable cultivations enclosed by rubble walls; the

trees are low in stature, as if stunted by fumes and smoke from collieries and chemical works ; and the few remaining untilled portions of old Kingswood Chase are sprinkled with heather, broom, needle-whin, and uncommon forms of bramble.

The Old Red Sandstone on Mendip, with a surface of about two square miles, carries the only good example of an upland heather moor in the district. The soil here is of moderate depth, contains much humus, and has become peaty and sphagnum owing to the impervious nature of the underlying rock. Rough moorland grasses, ling, heath, and whortleberry are abundant on this tract.

Sand-pits on the Upper Lias Sands are worked inland above Bitton and Upton Cheyney, and are found to be a suitable habitat by *Trifolium arvense* and *Medicago arabica*.

The Oolitic group of strata that forms the bed-rock of much of the country on the north-eastern border of the district, and of the hills about Bath, is covered by only a thin layer of soil, a sort of rubbly marl, consisting mainly of débris from the rock beneath. Primitive grass-land characterizes the Oolitic downs around Bath, and the slopes of the Sodbury range of hills. But within recent times the area of natural pasture has become greatly restricted owing to the land being brought under cultivation. These remarks apply equally to the Inferior Oolite of Dundry and Maes Knoll. The flora of the Bath hills is extremely varied, and includes some rare and local species. Plants to be found at present nowhere else in the district are *Polygala calcarea*, *Thesium humifusum*, *Euphorbia pilosa*, and *Orchis ustulata*. Another interesting species (*Gagea lutea*) shows a marked preference for woodland near Bath city. The arable cultivations are not of deep interest, botanically.

The soil lying on the masses of Mountain Limestone in the vicinity of Bristol is, generally speaking, a shallow marl or loam, reddish in colour, and dry and stony both on downs and in the woods. Bare rock is always in evidence, and with the cliffs and gorges furnishes a type of xerophilous vegetation richer in characteristic forms than any other. The loose screes, too, on the lowest slopes of rock, when they become partially fixed by sufficient soil, seem to provide conditions highly favourable to the rarer flowering plants. Such trees as the Whitebeam, Ash, and Yew, flourish on precipitous limestone crags where only the smallest amount of soil can have accumulated. Wide breadths of primitive pasture occupy the flattened ridges of the hills, and on these dry and exposed downs, if grazing allow, we likewise find an interesting vegetation.



Dr. Moss\* regards a limestone area as originally "a region of ash forest, now largely occupied by either farmland as a result of clearings, or by heath or pasture as a result of forest decay. The natural pasture passes gradually into the limestone heath as the soil becomes of sufficient depth or as grazing is discontinued. The limestone heath passes into the ash copse in the shady places with a still deeper soil, and the ash copse merges imperceptibly into the ash wood."

### CULTIVATION.

The region under review is essentially agricultural, and the extent and richness of its grazing lands form perhaps the most noteworthy and important feature of its surface. In general contour the land of the district may be said for the most part to slope gently from east to west, the direction followed by its principal rivers towards the great estuary of the Severn. And where rivers flow placidly across flat or slightly undulating country they are usually margined by tracts of meadow land such as we see along the course of the Avon below Twerton; in the valleys of the Boyd, Chew, Yeo and Axe; and as markedly in the parishes of Long Ashton, Flax Bourton, Chelvey and Nailsea, where the streams are insignificant. The coast too, in both divisions, has been formed to a great extent from alluvial deposits brought down by the Severn and the Bristol Avon, and is widely fringed in many places by stretches of fertile lowland which not only lie along the shore but extend far into the interior. Protection by sea-banks, drainage and cultivation have converted the great salt marshes of West Gloucester and North Somerset, with many impassable morasses in the Walton and Cheddar valleys and the peatmoor levels, into some of the most fertile soil in England. The patience, skill and industry of the inhabitants, exercised through long ages, have gained for this wide lowland area its reputation as perhaps the best grazing and dairy district in the kingdom.

Only about a tenth of the acreage under cultivation is now devoted to corn crops, the remainder being laid down to permanent grass. The amount of arable land has shrunk nearly two-thirds during the last forty years,\* and this shrinkage is relatively greater in Somerset than in West Gloucester. More wheat appears to be grown on uplands of the Coal Measures and Oolites of the eastern side of the district than elsewhere. The cultivation of fruit, on the

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\* *Geographical Distribution of Vegetation in Somerset*, p. 50.

other hand, has steadily increased. Thanks to demonstrations in apple culture given by experts employed by County Councils, West-country farmers have begun to pay more attention to their orchards than formerly. Useless old trees have been replaced by young ones of better sorts; pruning and grafting have been carried out on approved lines; and precautions are now taken against the inroads of insect pests and fungoid diseases. It may still be a long while, however, before Somerset apples cease to be used almost exclusively for cider, and can take the place in kitchen or dessert now so largely occupied by fruit from the Antipodes.

Bristol market gardens are rich in vegetable produce, and root crops in this district yield above an average.

The climatic advantages of our south-western position are often manifest in luxuriant shrubberies and flower gardens, whether tended for pleasure or for profit. But not one of the important vineyards of old time, that flourished near Bath, Claverton, Axbridge, Meare, Moorend, Mangotsfield, etc., now produces a grape. The causes that led to the decay and extinction of the wine industry are not clear unless they arose from alterations in our climate. We may take it, however, that no long interval separates us from the last attempts at vine-growing in this part of the country; for Dr. Harper informed me a few years ago that he had himself seen on a farm near Bath the ruins of a building that contained the remains of wine-presses for local grapes.\*

## RIVER DRAINAGE.

The river drainage of the district, throughout its central portion, is effected in the main by the Bristol Avon and its tributaries—the Frome, the Chew and the Boyd.

The Bristol or Lower Avon rises in Wiltshire and enters the district a short distance above the city of Bath. Its sluggish course to the Bristol Channel then forms most of the boundary line between Gloucestershire and Somerset. Two-thirds of its drainage area is oolitic. For many centuries it was the water-way for all the shipping of commercial Bristol, and since 1809 its original

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\* The county of Gloucester was particularly commended by Geoffrey of Malmesbury in the twelfth century as "exceeding all the rest of the kingdom in the number and goodness of its vineyards."

"No county in England has so many or so good Vineyards as this [Gloucestershire]; either for fertility or sweetness of the Grape. The wine has in it no unpleasant tartness or eagerness; and is little inferior to the French."—*Camden's Britannia*, Gibson's ed. (1695).



bed has formed the basins and floating harbours of the port. Above the tideway it is navigable for barges, by means of locks and weirs, for many miles. Below the city it flows through the famous Avon Gorge to Avonmouth, where commodious modern docks now relieve the river of its most important traffic. The tides of the Channel attain a greater height than in any other estuary in this country. At Avonmouth the difference of level between high and low water is sometimes as great as 49 or 50 feet. One result of this exceptional tidal variation is that the halophytic vegetation of all our estuarial banks and flats is periodically immersed in salt water to an unwonted depth.

The Gloucestershire Frome (another river of the name, unconnected with this district, separates Somerset from Wilts) drains about 68 square miles on the north-east of Bristol, a region that comprises most of the Coal Measures in the county outside the Forest of Dean. Rising in the Sodbury hills near Dodington, it takes a serpentine but picturesque route by way of Yate, Frampton Cotterell, Frenchay and Stapleton, and passing as a moat under the ancient walls of the city, falls into the floating harbour at St. Augustine's. For half a mile or so that portion of the river channel within the city boundaries has been arched over. A brisk and rapid stream, its course is marked by a goodly number of mills, many of them now abandoned and ruinous. To the surroundings of these old mills, their leats, pools, etc., the district flora is indebted for many noteworthy items. The flexuous valley of the Frome presents some charming bits of rural scenery, but the most lovely by far is on its lowest reach where, shortly before entering the city culvert, it passes by Oldbury Court and Stapleton. Glen Frome is one of the most beautiful spots in the neighbourhood of the city. In times of heavy rain this little river has occasioned some destructive floods, effecting untold mischief in the streets, churches and warehouses of the low-lying parts of Bristol. During one of these disastrous visitations it was estimated that a volume of more than ten million cubic feet of water per hour came down the Frome. The Stoke and Bradley Brooks are streamlets draining some miles of country between Filton, Almondsbury and Winterbourne. Their waters fall into the Frome near Moored.

The remaining tributary which brings to the Avon a considerable amount of water from the northern division of the district is the Boyd, which rises a little south of the Frome sources, and passing through the pretty ravine of Wyck and the Golden Valley, joins the Avon near Bitton.

South of Cromhall there rises a brook which runs northward through the picturesque gorge of Tortworth, and then unites with the Little Avon. The latter river drains the country about Wickwar, Charfield and Wotton-under-Edge, and falls into the Severn near Berkeley close to our northern limit.

As regards the fine ravines of Blaize Castle and Combe Dingle, and the insignificant rivulets which now pass through them to form the Trym that falls into the Avon at Sea Mills, geologists tell us that we shall cease to wonder at the disproportionate depth of these water-worn gorges when we realize the length of time that has elapsed since the rivulets began to flow. We should remember also that the tiny streams of to-day must, in the glacial epoch, have been swollen by melted snows into torrential floods, and have then exerted a scouring and denuding influence far in excess of the present amount.

If the Avon be excluded from consideration it will be seen that the rivers of our Somerset division are small and unimpressive. The best known is doubtless the Chew, which drains a wide valley of rich pasture land that lies between Dundry and the Mendips. The source of this clear and pleasant stream is at Chewton Mendip, whence it flows due north by Chew Stoke, Chew Magna, Pensford and Compton Dando to reinforce the Avon at Keynsham. A long list of good plants can be selected from the flora of the Chew Valley, particularly from that section between Stanton Drew and Compton Dando, where the botanizing is excellent.

Nearly the whole remainder of the district drains westward through alluvial flats into the Bristol Channel by a number of tranquil slowly moving streams of slight importance and of no great length. Among these the most prominent will be the River Axe, whose head-waters are underground in Mendip, and flow forth from caves at Wookey Hole and Cheddar. It is a stream of historic interest, at one time navigable from Axbridge downward. Roman barges laden with Mendip lead once made their way along its course to the tidal harbour at Uphill near Brean Down, where the Axe enters the sea.

The Yeo rises on the north face of the Mendip Hills near the Harptrees, and drains the Wrington valley with much of the marshland about Congresbury and Yatton before reaching its outfall into the Channel at Woodspring. Not far below its source it has been dammed to make the great reservoir at Blagdon. The Land Yeo brook comes out of the Wild Country below Dundry Hill, and crossing a cutting of the G.W.R. by an aqueduct continues



by Flax Bourton and Nailsea through Tickenham Moor to Clevedon. A third stream, known as the Lox Yeo, is a tributary of the Axe. It drains the Max meadows of the Winscombe valley below Shute-shelve, Christon and Loxton.

Lastly, we have the Brue, whose sluggish waters flow through the flattest part of Somerset, and take the drainage of the peat moors and the Brue Level on the southern border of the district—country which is mostly below high-water mark. The banks of this river are crowned with clay embankments to guard against floods, and its tidal mouth at Highbridge is controlled by sluice-gates.

Mud flats and muddy salt marshes occur at the mouths of all these streams that empty themselves into the Bristol Channel, and fringe their banks inland so far as the tidal limit. The flora is of the fleshy halophytic type, represented chiefly by *Salicornia*, *Plantago maritima*, *Triglochin maritimum* and *Glyceria maritima*.

### CLIMATE.

Meteorological data have been very carefully registered in the district for many years by various observers. The following particulars, compiled from publications of the late Dr. G. F. BURDER, Mr. D. RINTOUL and others, afford reliable information relating to average local temperatures and rainfall—the two most important elements from a botanical point of view.

The mean temperature at Clifton (the elevation of 200' may be taken as that of a large portion of West Gloucestershire) is ascertained to be 48·7° Fahr. for the whole year, about half a degree below that of Greenwich. The difference, however, is not uniformly distributed through the year, for while the mean temperature of the summer months at Greenwich is above that of Clifton, the mean temperature of the winter months at Greenwich is slightly below. The proximity of the Bristol Channel has, no doubt, an equalizing influence. At Clifton the mean temperature of January, the coldest month of the year, is 38·8°, as compared with 60° for July and August, the two hottest months in the year.

The low Somerset plain is somewhat warmer, and the extremes of temperature are here less pronounced than elsewhere in the district. The mean annual temperature of the lowland area is 51° Fahr., the average temperature for January being 40°, and that of July and August 62°. The coldest and most extreme conditions, as might be expected, prevail upon the Mendip Hills, but even there the winter is of short duration.

The mean annual rainfall at Clifton for 22 years amounted to a little over 32 inches, and the monthly averages for the same period ranged from less than 2 inches in April to over  $3\frac{1}{2}$  inches in October.

For the lowlands of the Somerset division the mean rainfall has been placed at a little more than 30 inches per annum; while on and north of the Mendip summits Dr. Moss computes it to be between 40 and 45 inches. He writes that the rainfall on the north and east of the Mendips is distinctly higher than that on the south and west of those hills. Thus at Glastonbury and Wells, for example, it may be taken at a little more than 30 inches annually, whilst it runs up to over 40 inches about Chewton Mendip, Ston Easton and Pensford. The mean monthly rainfall in inches, calculated for 30 years, in a typical lowland and upland locality, was found to be, for March, 1·78 at Glastonbury, and 3·11 at Chewton Mendip; and for October, 3·27 and 4·80 at those places respectively.

Out of twenty-three consecutive winters at Clifton there were fifteen in which the heaviest fall of snow did not reach two inches.

In effect, the climate of the district is mild and equable, though from its diversified surface certain variations are experienced. The seaboard is warm and sunny, while the breezes from its Atlantic frontage are bracing and beneficial. The Mendip upland has been chosen as a suitable site for consumption sanatoria. The favourable conditions that obtain on sheltered and fertile slopes of the foothills near Clevedon and in the Cheddar Valley foster an increasing industry in the production of vegetables, fruit and flowers. Every summer large consignments of choice and early produce leave the district for the markets of opulent northern cities. In the neighbourhood of the Channel a variety of exotic shrubs and flowers can grow freely in the open air, and plants, both native and cultivated, continue to blossom well on into the winter months.

## ORIGIN OF THE FLORA AND ITS MODERN MODIFICATIONS.

Space will not admit of more than a brief allusion to some additional points of interest that arise in connection with local features of plant distribution.

During the nineteenth century many books and papers have been written on the flora of the whole country, or of limited areas, or on special groups of plants. These have added greatly to our knowledge of the general and local distribution of vegetation in Britain,



and have prompted speculation on its origin. But though so much has been done to throw light on obscure matters, yet it has to be admitted that all attempts to trace out the course of prehistoric events are likely to fail in some respects through imperfect information; and that a reconstruction of the bygone botanical story must perforce be restricted to vague outlines, and be more or less imaginative.

Inquiry and explanation seem to be especially invited by the curious fact that we have in the Bristol district eight or nine species found nowhere else in Britain, and several others that reappear only still further to the south-west. Besides the special species that are peculiar to our own area there can be noted a long list of like rarities that are confined to the Peninsular Province, the coast of South Wales, and the south-west of Ireland. Among them are the Monkshood, the yellow *Draba* on the Gower coast, the Dawlish *Romulea*, the Cornish St. John's Worts, the three Lizard clovers, *Lobelia urens*, the *Arbutus*, the Mediterranean and St. Dabeoc's Heaths, the London Pride, and other of the Robertsonian Saxifrages. In all, there might be reckoned some seventy or eighty of these remarkable plants, most of them belonging to a class that has nothing in common with those of Scandinavia and Central Europe—the flora with which British vegetation as a whole is most closely related. In many of the cases cited the plant is a southern one, found in Western Asia and the Mediterranean region. It probably extends through Provence to Spain and Portugal, and in a few instances may occur so far north as the valley of the Loire. But there it ceases, to reappear in some warm and sheltered locality in the extreme south-west of the British Isles. This peculiar range of distribution (obviously not accidental) arouses curiosity and prompts the apparently futile question—Why did these plants take a route so extraordinary and come to our shores by way of the Pyrenees to settle near the Land's End or in Kerry and Connemara? If warmth of climate had been the only influence at work we should surely find them in Sussex, Hants and the Isle of Wight, where, as a matter of fact, we never do. The true answer to such a question is not known. The subject is so complicated, and the geological records are so imperfect that it may be long before an entirely satisfactory explanation can be furnished. It may be useful, however, to jot down a few facts that are generally accepted; and to give an indication of the views held by geologists who have studied the problems that lie at the root of this inquiry.

It is considered indisputable that the British flora in the mass

must be of comparatively recent date as regards its introduction ; that our islands have not been isolated from the Continent long enough for endemic species to have been generated ; and that the ancestors of British plants, as we now see them, established themselves here after the close of the last glacial epoch, a period when the whole country, save an insignificant portion, was in the condition of Greenland at the present day—hidden under accumulated snows and sheets of ice. The old pre-existent flora, it is said, was totally blotted out over the greater part of Britain by intense climatic severity ; and if any spots remained where it had not been entirely exterminated they could be looked for solely in a few small non-glaciated areas south of the Thames and Severn. In those parts only might plants of the ancient flora have survived, but it is considered that the whole region was doubtless so cold, that Temperate species must have entirely disappeared. MR. CLEMENT REID\* argues that no place of retreat was left in these islands for Temperate animals and plants. He says : “ All Ireland was glaciated, so nothing could live there, except a few Arctic plants on the mountain tops. All England was under ice, except the extreme south ; and there the climate was too cold for Temperate plants to live.” Clearly, if that were so, these peculiar west-country species of southern origin could not have been members of a pre-glacial flora. They must have arrived, in company with the rest of British vegetation, after the end of the last ice age, which terminated some 80,000 years ago. As regards Bristol’s special rarities it is interesting to note that not one of them is included in MR. CLEMENT REID’s lists of fossil British plants.

It may be taken for granted that the great bulk of our species—plants and mammals also—came from the east and south-east over a wide belt of dry land that formerly existed across the German Ocean and the English Channel ; a land connection which has since gradually subsided or been submerged through inroads of the sea. As the glaciers cleared away and the temperature rose again, plants and animals would follow the retreating ice-sheets year by year, till at length they were able to make a permanent home in the rejuvenated region. In this way we can sufficiently account for the presence in England and Scotland of the Central European and Scandinavian elements. But to account by land-dispersal for our south-western species belonging to Iberian and Italian types, we must presuppose a far more complete and universal land connection

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\* *The Origin of the British Flora.* London, 1899.



in ancient days than that just mentioned. Some geologists have indeed believed that the land of prehistoric Europe stretched out to the north, south, and east of the British Isles far beyond the shores of Spain and Ireland, so that the ancient coast-line corresponded with the present hundred-fathom line to seaward. DR. JAMES GEIKIE has shown reasons for concluding that the ice age was immediately succeeded by a period of very genial conditions in Northern Europe. Thus, given a continuous belt of lowland stretching from Spain to Ireland, we can understand that Mediterranean and Iberian plants would spread along its warm, moist, western shore so far as the favouring climatic conditions might permit, quite probably to Land's End, Kerry, and Connemara. When subsequent changes had taken place, and subsidences and submergence had done their work in sinking beneath the waves the intervening land of the North Sea, the Channel, and the western Atlantic plain, then the group of southern plants, whose history is being discussed, would find themselves quite cut off from their fellows in Provence, Portugal, and the Pyrenees. Yet they have contrived to maintain a precarious existence in a few scattered and sheltered places near the warm waters of the Gulf Stream. This is the theory that seems to me to afford a rational explanation of the way in which our western flora has been enriched.

I am aware that influential authorities are of opinion that accidental modes of transportation are sufficient to account for the introduction of the whole of our native plants, without the necessity for any continuous land connection between the different islands or with the Continent. But it is most difficult to believe that so large a series of peculiar species should have been assembled together by accident in the extreme south-west of our country—brought on the feet of birds or on the floating carcasses of defunct animals. Their number is too great, and the area they occupy too singular. AS GRANT ALLEN puts it : " Separated from all the rest of their kind, exposed to occasional hard winters and heavy frosts, they have yet left here and there a few isolated descendants to tell the story of their origin and their failure. Curiously enough, their little lingering colonies exist only on the southern and western slopes, among the cliffs and combs and bays which face and overlook the submerged lands whence their ancestors were driven. . . . These plants are all evidently dying out ; they represent an old flora no longer adapted to the country at large, not a new flora pushing its way vigorously. Every year they are diminishing and disappearing. . . . There are clear evidences that they form the last

stragglers of a vanquished host, not the vanguard of a victorious and aggressive race."

Although a full record of the past history of our flora may be wanting, we have undoubtedly been helped to determine more clearly the significance of man's relations with the plants that surround him. I think it can be fairly assumed that human influence had produced no great effect upon the apparently wild vegetation of this country before the end of the eighteenth century. Then, at the close of the protracted war period, there came freedom of communication with all parts of the globe; the population began to increase rapidly; commerce and cultivation received a stimulus, and common lands were enclosed on an extensive scale. These changes and developments soon produced an effect upon the vegetation, and have continued to do so with increasing force.

A considerable number of those plants which we call Colonists, weeds of cultivation or agrestal species (Poppies, Fumitories, Charlock and the like), were doubtless introduced into Britain a very long while ago, so long ago that the agency and source of introduction must remain unknown. The immigration of such plants, formerly very slow indeed, has been accelerated of late, unintentionally and unconsciously, by our vastly increased commercial and other intercourse with foreign lands. There have arrived in recent times several remarkable plants of this class that established themselves rapidly, and are now widely distributed, not only in this district but generally throughout Britain. *Veronica Buxbaumii*, or *V. Tournefortii* as it has also been called, was first noticed in this country in 1825, and is now one of the commonest weeds on cultivated land. The Clover Dodder and the Hoary Cress (*Lepidium Draba*) were also unknown to us before the nineteenth century. The latter made its first appearance at Bristol on city refuse, and has since been carried to a number of widely separated localities. There is a prospect of its proving, after a time, as great a pest to our agriculturists as it already is in the south of France. Other prominent examples of rapid colonization in this neighbourhood are presented by *Senecio viscosus*, *Matricaria suaveolens*, *Crepis biennis*, and *C. taraxacifolia*, none of which was on record a generation or so ago. In this connection must be mentioned the intentional introduction of some closely related Caucasian Comfrees. These were experimented with for a while as fodder plants; and, when their cultivation ceased and the roots were thrown out on field



borders and hedgesides, they took firm hold of the ground, and are now frequently in evidence.

In addition to these imported plants that have speedily become naturalized and have obtained a permanent foothold, there is a large class, similarly introduced, which seem unable to establish themselves and spread into fresh localities. They maintain their presence only as the result of repeated reintroduction from the same sources, and show themselves chiefly near great centres of traffic, about seaports, and on city refuse. The docks and warehouses of Bristol provide an abundant supply of such species. The Exotic weeds now often met with about corn-mills, paper-mills, and malt-houses are derived from imported raw materials and food-stuffs; from wheat, maize, and especially Eastern barley, much used in modern malting. Before the grain enters on the malting process it is cleaned by machinery, and the separated extraneous matters, in great part consisting of leguminous and other seeds, are sold for feeding poultry. The appearance of strange plants in unexpected spots (as on Wraxall Hill, Kingswood Hill, etc.), may usually be traced to the existence of a fowl run.

Another important factor in the introduction of casuals is the construction and traffic of railways. Sidings, station-yards, embankments, and cuttings often supply plants that are not indigenous to the adjacent country. These spring from seeds spilled from forage and merchandise carried along the line, or that have been swept out of the trucks with rubbish. Fox's Wood Sidings and Portishead Station-yard give good illustrations on this head.

As has been intimated, the majority of such outlanders endure but for a season. Either their seeds are not ripened for lack of warmth; or, if perennial, they cannot survive the winter cold. Should any manage to persist, they are soon crowded out from the site by more hardy native species—the docks, thistles and grasses of our waste lands. Nevertheless, they form an interesting study in the light they throw on the commerce and industries of the country, and on its relations with other lands. It has appeared judicious to mention in this book the occurrence of such plants; because, when accompanied by explanatory suggestions respecting their origin, the record is rendered a fact of real value to the botanical geographer. The task of identifying these immigrants is no light one. In fact, more trouble has been experienced in working them out satisfactorily than in verifying the native plants of the district.

The influence of railways upon our flora shows itself in various

ways. Embankments and cuttings offer good drainage and a sunny exposure, and often give plants which are fond of an open situation facilities which the more uniform, shaded, and highly cultivated country does not afford. Hence we often see about Bristol native species doing unusually well on railways. *Lathyrus Nissolia* is remarkably plentiful along the G.W.R. east of Brislington. The Midland line near Staple Hill and Mangotsfield is gay with blossoms of *Hieracia* at midsummer; and passengers through the Cheddar Valley must perforce admire the luxuriance of Sage and Red Valerian in the cuttings near Axbridge. The light seeds of *Epilobia*, too, seem to become readily attached to moist spots in the cuttings. A few species show so singular a preference for railway ballast that they are seldom seen in any other situation. *Arenaria tenuifolia* and *Linaria viscida* may be cited as examples of such "ferro-viatial" plants. Seeds and spores appear to be carried long distances by the rush of trains. It looks as if *Linaria repens* had been brought into the district in that way; and the Limestone Polypody has made a home by the line both at Congresbury and in the Saltford cutting. Why the fern should have selected those spots alone, when so many limestone outcrops are available between Cheddar Gorge and Bath, is a mystery. But while we may owe to the extension and working of railways the addition to our local flora of some noteworthy items, it is to be feared that the huge embankments, by which some of the lines approach Bristol, and other necessary works in connection with their traffic, may have blotted out a good deal of interesting ground, and that we are in consequence the poorer among lowland species at St. Philip's Marsh and the Boiling Well.

Thus, certain changes and modifications of the flora are resulting from human inventions and human industry and commerce. Man destroys, and man may be said also to enrich the vegetation around him. We perceive and regret, while we are powerless to arrest, the effect of his operations where drainage, cultivation, or great undertakings have altered the relative abundance of native plants by direct interference with their environment; or, in a few cases, have unhappily caused their extinction. Near great centres of population these effects are most evident, and must be deemed inevitable. But it should be possible to combat some other modern tendencies which, if unrestrained, will seriously endanger the existence of many species in the vicinity of our city. The uprooting of plants for garden purposes continues in an ever-increasing area beyond the limits of pedestrian tramps and hawkers. For



nowadays the cyclist may be seen returning from an outing laden with roots of ferns or primroses.

The cult of "Nature Study" in our schools has much to answer for in inconsiderate gatherings of our scarcer flowers, taken it may be root and all, when a few selected specimens would suffice to illustrate everything that the teacher wishes to impart. And if it be practicable in this age of irreverence, surely it would be a good work to persuade children to pluck with care only so many blossoms as they wish to carry home and keep alive, rather than to make a sport of plucking and then to fling down distressing handfuls by the wayside when their poor sport is done. Even the late movement for establishing "wild gardens" in all our public parks may be fraught with unintentioned but irremediable mischief. For those who know something of the delicacy and difficulty of such cultivation can foresee a dire demand for relays of roots of our rarer plants to replace failures in the planting.

Is it too much to hope that with the coming years there may grow up a fuller, purer sympathy with nature, a more reverent spirit that will aim at preservation rather than destruction; and that young people may be trained to learn the lessons (and they are many) which wild flowers can teach, without diminishing the attractions of their country or the enjoyment of those others who delight to contemplate all beautiful things in the positions naturally assigned to them?

### BOTANICAL NOTES.

The vegetation of any area or district may be divided into two sections: first, those plants which are believed to be the primitive inhabitants of the soil and truly indigenous; and, secondly, those which we have reason to conclude were not originally present, but have been introduced at one period or another, directly or indirectly, through the agency of man. The plants of the latter category can, by careful observation of their circumstances, be again subdivided according to their various degrees of wildness, so that the whole vegetation will fall into certain grades of citizenship as planned by the late HEWETT C. WATSON, and be classed as follows:—

**NATIVES.**—The aboriginal occupants of the country.

**DENIZENS.**—Plants that appear to be native, but which are either known or reasonably suspected to have been introduced by artificial means. These would probably maintain their footing even if man and his cultivations were swept away.

COLONISTS.—Weeds of cultivated land as a rule. Although well established, it is likely that these would disappear after a time if cultivation ceased.

ALIENS.—Those plants which are certainly of foreign origin, but have become, or are becoming, well established.

CASUALS.—Chance stragglers from cultivation, garden outcasts, and foreign plants brought in with imported grain and merchandise. These are fugitive, seldom ripening seed.

It is no easy task to determine the position of certain species, as some might be equally well placed under more than one of these divisions, especially the first two and the last two, because no decided line can be drawn between them. And there is evidence that vegetation throughout the globe is constantly changing from various causes. But, for purposes of analysis and comparison, it is important to separate, so far as is practicable, the true Native of an area from the non-indigenous element.

The number of plants dealt with in these pages reaches a grand total of 1692. On analysis we get the following result:—

Natives	..	..	..	..	..	981
Denizens	..	..	..	..	..	60
Colonists	..	..	..	..	..	79
Aliens and Casuals	..	..	..	..	..	282
Varieties	..	..	..	..	..	255
Errors, ambiguities, extinctions, etc.	..	..	..	..	..	35
						<hr/> 1692

Of the above total, 1178 species are adjudged to be permanent units in the local flora, and are numbered consecutively. In relative frequency these have been thus arranged:—

Very common	..	..	..	..	186
Common	..	..	..	..	152
Rather common (frequent)		..	..	..	245
Rather rare	..	..	..	..	184
Rare (or local)	..	..	..	..	193
Very rare	..	..	..	..	218
					<hr/> 1178

Three native plants are positively extinct, viz. *Crambe maritima*, *Cyperus longus*, *Carex Davalliana*.

Besides the indubitable losses, there are some other species which may not be actually extinct but cannot now be found, and so need confirmation, e.g. :—



*Ranunculus Lenormandi*.  
*Drosera anglica*.  
*Vicia lutea*.  
*Eryngium campestre*.  
*Filago apiculata*.  
*Limonium occidentale*.  
*Atriplex littoralis*.  
*Polygonum maritimum*.  
 — *dumetorum*.

*Daphne Mezereum*.  
*Epipactis ensifolia*.  
*Aceras anthropophora*.  
*Eleocharis uniglumis*.  
*Carex dioica*.  
*Elymus arenarius*.  
*Equisetum sylvaticum*.  
*Lycopodium Selago*.  
*Polypodium Dryopteris*.

Published records deemed to be erroneous have not been very numerous. They relate to:—

*Arabis perfoliata*.  
*Thlaspi perfoliatum*.  
*Teesdalia nudicaulis*.  
*Helianthemum marifolium*.  
 — *ledifolium*.  
*Pimpinella magna*.  
*Sonchus palustris*.  
*Vaccinium Vitis-Idæa*.

*Pyrola media*.  
*Ophrys aranifera*.  
*Carex canescens*.  
 — *limosa*.  
*Phleum asperum*.  
*Agrostis setacea*.  
*Poa bulbosa*.

If not really erroneous, more or less doubt attaches to the recorded occurrence in the district of the following species:—

*Anemone Pulsatilla*.  
*Trifolium suffocatum*.  
*Parnassia palustris*.  
*Salicornia radicans*.  
*Chenopodium glaucum*.

*Typha angustifolia*.  
*Luzula Forsteri*.  
*Calamagrostis lanceolata*.  
*Hymenophyllum tunbridgense*.

Subject to the reservations mentioned, the following eight species are not known in any other part of the United Kingdom:—

*Pæonia corallina*.  
*Arabis stricta*.  
*Dianthus gratianopolitanus*.  
*Hieracium lima*.

*Stachys alpina*.  
*Euphorbia pilosa*.  
*Allium sphaerocephalum*.  
*Keleria vallesiana*.

The Bristol Rock-Cress (*Arabis stricta*) has been claimed by Radnorshire in recent years, but I have not seen any description of the conditions under which it grows at the new locality. *Hieracium lima*, at Cheddar, now stands alone; the West Yorkshire hawkweed (*Fl. Som.*, pp. xiv, 208) having been placed elsewhere. *H. stenolepis*, supposed at one time to be confined to the Cheddar Gorge (*Fl. Som.*, pp. xiii, 208), has since been found by the Wye near Chepstow, and in other counties. It is possible that the Pæony may have been introduced.

A peculiar and distinctive feature of the Bristol flora is the number of "very rare" species that are mostly known in one spot only in this large area, and are often restricted to the compass of a few square feet. Though the majority of these may appear to rest on

a most precarious footing, and may indeed, with those of the last category and some other south-western species, be the last survivors from an old and dying-out flora, yet at present all seem to be holding their ground well. Examples of such plants are :—

*Corydalis claviculata.*  
*Linosyris vulgaris.*  
*Atriplex laciniata.*  
*Polygonum Raii.*  
*Thesium humifusum.*  
*Juncus maritimus.*  
*Cladium Mariscus.*

*Scirpus Holoschænus.*  
*Carex montana.*  
 — *teretiusecula.*  
 — *elata.*  
 — *vesicaria.*  
 — *depauperata.*  
*Polypodium Phegopteris.*

In addition to the names already given, the Bristol Coal-Fields possess a long list of rare and local British species, many of them sparingly distributed in other parts of the country :—

*Thalictrum minus.*  
*Myosurus minimus.*  
*Helleborus viridus.*  
 — *fatidus.*  
*Aconitum Napellus.*  
*Papaver Lecoqii.*  
*Meconopsis cambrica.*  
*Barbarea intermedia.*  
 — *præcox.*  
*Cardamine impatiens.*  
*Draba muralis.*  
*Erysimum cheiranthoides.*  
*Diplotaxis tenuifolia.*  
*Lepidium latifolium.*  
 — *rudemale.*  
*Thlaspi alpestre.*  
*Hutchinsia petræa.*  
*Helianthemum polifolium.*  
*Viola calcarea.*  
*Polygala calcarea.*  
*Cerastium pumilum.*  
*Arenaria verna.*  
*Althæa officinalis.*  
*Lavatera arborea.*  
*Tilia cordata.*  
*Geranium sanguineum.*  
 — *rotundifolium.*  
*Erodium moschatum.*  
 — *maritimum.*  
*Trigonella ornithopodioides.*  
*Trifolium squamosum.*  
 — *filiforme.*  
*Vicia gracilis.*  
 — *Orobus.*  
 — *bithynica.*  
*Lathyrus Nissolia.*  
 — *palustris.*  
*Potentilla verna.*

*Pyrus latifolia.*  
 — *intermedia.*  
*Cratægus splendens.*  
*Saxifraga hypnoides.*  
*Sedum album.*  
 — *dasyphyllum.*  
 — *rupestre.*  
*Epilobium lanceolatum.*  
 — *Lamyi.*  
*Bupleurum tenuissimum.*  
*Trinia glauca.*  
*Oenanthe pimpinelloides.*  
 — *fluviatilis.*  
*Peucedanum palustre.*  
*Rubia peregrina.*  
*Galium erectum.*  
 — *sylvestre.*  
*Valeriana Mikanii.*  
*Hieracium Schmidtii.*  
 — *Cyathis.*  
 — *rubiginosum.*  
*Vaccinium Oxycoccus.*  
*Andromeda polifolia.*  
*Lithospermum purpureo-cæruleum.*  
*Veronica hybrida.*  
*Orobanche Hederae.*  
*Prunella laciniata.*  
*Rumex maritimus.*  
 — *limosus.*  
*Epipactis media.*  
*Orchis ustulata.*  
*Ophrys Trollii.*  
*Polygonatum officinale.*  
*Scilla autumnalis.*  
*Fritillaria Meleagris.*  
*Tulipa sylvestris.*  
*Juncus compressus.*



*Juncus diffusus.*  
*Ruppia spiralis.*  
*Cyperus fuscus.*  
*Scirpus Savii.*  
*Rynchospora fusca.*  
*Carex Leersii.*  
 — *digitata.*  
 — *humilis.*  
 — *strigosa.*  
*Alopecurus bulbosus.*  
*Gastridium lendigerum.*  
*Glyceria procumbens.*

*Festuca Myuros.*  
*Brachypodium pinnatum.*  
*Elymus europæus.*  
*Bromus madritensis.*  
 — *racemosus.*  
*Agropyron pungens.*  
*Hordeum maritimum.*  
*Equisetum hyemale.*  
 — *variegatum.*  
*Asplenium lanceolatum.*  
*Chara polyacantha.*  
 — *contraria.*

Plants that are not improbably natives of the district but have not yet been detected. They should be looked for :—

*Ranunculus Lenormandi.*  
*Cardamine amara.*  
*Viola lactea.*  
*Sagina subulata.*  
*Trifolium glomeratum.*  
*Prunus Cerasus.*  
*Agrimonia odorata.*  
*Sanguisorba officinalis.*  
*Rubus foliosus.*  
*Tillæa muscosa.*  
*Jasione montana.*  
*Centunculus minimus.*

*Orchis ericetorum.*  
*Sparganium neglectum.*  
*Luzula Forsteri.*  
*Carex lævigata.*  
*Alopecurus fulvus.*  
*Anthoxanthum Puelii.*  
*Avena strigosa.*  
*Glyceria Borreri.*  
*Festuca sylvatica.*  
*Lastrea æmula.*  
*Chara aspera.*

Of the 1178 species that have been numbered consecutively, 997 belong to both divisions of the district ; 27 have been found only in Gloucestershire ; and 144 only in Somerset.

#### LIST OF BRISTOL SPECIES FOUND ONLY IN THE GLOUCESTERSHIRE DIVISION :—

*Glaucium phaniceum.*  
*Fumaria densiflora.*  
*Spergularia rubra.*  
*Genista anglica.*  
*Astragalus danicus.*  
*Rubus dumnoniensis.*  
 — *bracteatus.*  
 — *gratus.*  
 — *hypoleucus.*  
 — *lasioclados.*  
 — *oigoclados.*  
 — *hystrix.*  
 — *Bucknalli.*  
*Hieracium pellucidum.*

*Hieracium diaphanoides.*  
*Campanula latifolia.*  
*Veronica hybrida.*  
*Clinopodium Nepeta.*  
*Stachys alpina.*  
*Cephalanthera ensifolia.*  
*Allium sphærocephalum.*  
*Carex Leersii.*  
 — *vesicaria.*  
*Festuca arundinacea.*  
*Hordeum sylvaticum.*  
*Asplenium lanceolatum.*  
*Nilella opaca.*

LIST OF BRISTOL SPECIES FOUND ONLY IN  
THE SOMERSET DIVISION :—

- |                                    |                                       |
|------------------------------------|---------------------------------------|
| <i>Aconitum Napellus.</i>          | <i>Eryngium campestre.</i>            |
| <i>Papaver hybridum.</i>           | <i>Cicuta virosa.</i>                 |
| <i>Meconopsis cambrica.</i>        | <i>Enanthe fluviatilis.</i>           |
| <i>Fumaria purpurea.</i>           | <i>Peucedanum palustre.</i>           |
| <i>Alyssum maritimum.</i>          | <i>Galium umbellatum.</i>             |
| <i>Draba muralis.</i>              | <i>Linosyris vulgaris.</i>            |
| <i>Cochlearia officinalis.</i>     | <i>Gnaphalium sylvaticum.</i>         |
| <i>Thlaspi alpestre.</i>           | <i>Hypochaeris glabra.</i>            |
| <i>Viola palustris.</i>            | <i>Hieracium Cyathis.</i>             |
| — <i>calcareo.</i>                 | — <i>lima.</i>                        |
| <i>Drosera rotundifolia.</i>       | — <i>Schmidtii.</i>                   |
| — <i>longifolia.</i>               | — <i>stenolepis.</i>                  |
| <i>Polygala calcarea.</i>          | — <i>rigidum.</i>                     |
| <i>Dianthus gratianopolitanus.</i> | — <i>rubiginosum.</i>                 |
| <i>Silene maritima.</i>            | <i>Andromeda polifolia.</i>           |
| <i>Honkeneja peploides.</i>        | <i>Vaccinium Oxycoccus.</i>           |
| <i>Alsine verna.</i>               | <i>Erythraea ramosissima.</i>         |
| <i>Stellaria palustris.</i>        | <i>Convolvulus Soldanella.</i>        |
| <i>Cerastium arvense.</i>          | <i>Cuscuta Epithymum.</i>             |
| <i>Lavatera arborea.</i>           | <i>Lithospermum purpureo-cæruleum</i> |
| <i>Geranium striatum.</i>          | <i>Orobanche amethystea.</i>          |
| <i>Radiola linoides.</i>           | <i>Rhinanthus major.</i>              |
| <i>Vicia gracilis.</i>             | <i>Euphrasia Rostkoviana.</i>         |
| — <i>Orob.</i>                     | — <i>brevipila.</i>                   |
| <i>Lathyrus palustris.</i>         | — <i>Kernerii.</i>                    |
| <i>Comarum palustre.</i>           | <i>Mentha citrata.</i>                |
| <i>Rubus fissus.</i>               | <i>Prunella laciniata.</i>            |
| — <i>sulcatus.</i>                 | <i>Pinguicula lusitanica.</i>         |
| — <i>opacus.</i>                   | <i>Utricularia vulgaris.</i>          |
| — <i>nitidus.</i>                  | — <i>major.</i>                       |
| — <i>carpinifolius.</i>            | — <i>minor.</i>                       |
| — <i>rhombifolius.</i>             | <i>Hottonia palustris.</i>            |
| — <i>thyrsoides.</i>               | <i>Limonium binervosum.</i>           |
| — <i>Godroni.</i>                  | <i>Littorella juncea.</i>             |
| — <i>pubescens.</i>                | <i>Atriplex littoralis.</i>           |
| — <i>Gelertii.</i>                 | — <i>laciniata.</i>                   |
| — <i>anglosaxonicus.</i>           | <i>Rumex maritimus.</i>               |
| — <i>infestus.</i>                 | — <i>limosus.</i>                     |
| — <i>Babingtonii.</i>              | <i>Polygonum maculatum.</i>           |
| — <i>ericetorum.</i>               | — <i>mite.</i>                        |
| — <i>pallidus.</i>                 | — <i>dumetorum.</i>                   |
| — <i>scaber.</i>                   | <i>Thesium humifusum.</i>             |
| — <i>viridis.</i>                  | <i>Euphorbia pilosa.</i>              |
| — <i>ochrodermis.</i>              | — <i>Paralias.</i>                    |
| — <i>Balfourianus.</i>             | <i>Ceratophyllum demersum.</i>        |
| — <i>saxatilis.</i>                | <i>Myrica Gale.</i>                   |
| <i>Rosa agrestis.</i>              | <i>Herminium Monorchis.</i>           |
| <i>Pyrus intermedia.</i>           | <i>Epipactis palustris.</i>           |
| — <i>rupicola.</i>                 | <i>Narthecium ossifragum.</i>         |
| <i>Oenothera odorata.</i>          | <i>Juncus squarrosus.</i>             |
| <i>Sedum Fabaria.</i>              | <i>Potamogeton coloratus.</i>         |
| <i>Saxifraga hypnoides.</i>        | — <i>heterophyllum.</i>               |
| — <i>granulata.</i>                | — <i>lucens.</i>                      |



- |                                |                                |
|--------------------------------|--------------------------------|
| <i>Potamogeton Friesii.</i>    | <i>Carex montana.</i>          |
| <i>Ruppia spiralis.</i>        | — <i>extensa.</i>              |
| <i>Zostera marina.</i>         | — <i>depauperata.</i>          |
| <i>Cyperus fuscus.</i>         | — <i>filiformis.</i>           |
| <i>Schoenus nigricans.</i>     | <i>Ammophila arundinacea.</i>  |
| <i>Cladium Mariscus.</i>       | <i>Koeleria vallesiana.</i>    |
| <i>Rhynchospora alba.</i>      | <i>Festuca uniglumis.</i>      |
| — <i>fusca.</i>                | — <i>oraria.</i>               |
| <i>Eleocharis multicaulis.</i> | <i>Triticum junceum.</i>       |
| <i>Scirpus Tabernæmontani.</i> | <i>Elymus arenarius.</i>       |
| — <i>pauciflorus.</i>          | <i>Equisetum hyemale.</i>      |
| — <i>cernuus.</i>              | — <i>variegatum.</i>           |
| — <i>Holoschænus.</i>          | <i>Polypodium Phegopteris.</i> |
| <i>Eriophorum vaginatum.</i>   | — <i>Robertianum.</i>          |
| — <i>polystachion.</i>         | <i>Lastrea Thelypteris.</i>    |
| — <i>latifolium.</i>           | <i>Asplenium marinum.</i>      |
| <i>Carex teretiuscula.</i>     | <i>Chara contraria.</i>        |
| — <i>paniculata.</i>           | — <i>hispida.</i>              |
| — <i>elata.</i>                | — <i>polyacantha.</i>          |

## DISTRIBUTION OF THE MORE NOTEWORTHY SPECIES ACCORDING TO GEOLOGICAL FORMATIONS.

The following lists are approximately correct, though some interesting plants are more indifferent than others to the nature of soils or the underlying strata, and are consequently found on more than one formation. The mention of a plant in one list only must not be taken to imply that it never occurs on rock of another nature, but that the species appears locally to be more at home on that under which it is placed.

### COAST SANDS, DUNES AND SHINGLE.

- |                               |                                |
|-------------------------------|--------------------------------|
| <i>Papaver dubium.</i>        | <i>Hyoscyamus niger.</i>       |
| — <i>Argemone.</i>            | <i>Lycopsis arvensis.</i>      |
| <i>Glaucium flavum.</i>       | <i>Cynoglossum officinale.</i> |
| <i>Sisymbrium Sophia.</i>     | <i>Myosotis collina.</i>       |
| <i>Lepidium latifolium.</i>   | <i>Anagallis arvensis.</i>     |
| <i>Cakile maritima.</i>       | <i>Salsola Kali.</i>           |
| <i>Viola ericetorum.</i>      | <i>Atriplex spp.</i>           |
| <i>Saponaria officinalis.</i> | <i>Euphorbia Paralias.</i>     |
| <i>Honkeneya peploides.</i>   | <i>Epipactis palustris.</i>    |
| <i>Cerastium tetrandrum.</i>  | <i>Scirpus Holoschænus.</i>    |
| — <i>semidecandrum.</i>       | <i>Carex arenaria.</i>         |
| <i>Sagina maritima.</i>       | — <i>extensa.</i>              |
| <i>Ononis horrida.</i>        | <i>Phleum arenarium.</i>       |
| <i>Trifolium arvense.</i>     | <i>Ammophila arundinacea.</i>  |
| <i>Vicia lathyroides.</i>     | <i>Festuca uniglumis.</i>      |
| <i>Rosa spinosissima.</i>     | <i>Agropyron junceum.</i>      |
| <i>Anthriscus vulgaris.</i>   | <i>Equisetum hyemale.</i>      |
| <i>Enothera spp.</i>          | — <i>variegatum.</i>           |
| <i>Carduus tenuiflorus.</i>   |                                |

## SALT MARSHES.

*Cochlearia anglica.*  
*Spergularia salina.*  
 — *marina.*  
*Trifolium maritimum.*  
*Bupleurum tenuissimum.*  
*Artemisia maritima.*  
*Aster Tripolium.*  
*Glaux maritima.*  
*Plantago maritima.*  
*Beta maritima.*  
*Atriplex* spp.

*Salicornia* spp.  
*Suaeda maritima.*  
*Juncus maritimus.*  
*Triglochin maritimum.*  
*Alopecurus bulbosus.*  
*Sclerochloa procumbens.*  
 — *maritima.*  
*Agropyron pungens.*  
*Lepturus filiformis.*  
*Hordeum marinum.*

## OLD ALLUVIUM.

*Thalictrum flavum.*  
*Myosurus minimus.*  
*Ranunculus circinatus.*  
 — *heterophyllus.*  
 — *submersus.*  
 — *Lingua.*  
*Radicula pinnata.*  
*Brassica nigra.*  
*Lepidium rudemale.*  
*Senebiera didyma.*  
*Althæa officinalis.*  
*Medicago denticulata.*  
 — *arabica.*  
*Trifolium squamosum.*  
*Carum segetum.*  
*Oenanthe fistulosa.*  
*Mentha rubra.*  
*Hottonia palustris.*

*Sagittaria sagittifolia.*  
*Butomus umbellatus.*  
*Hydrocharis Morsus-ranæ.*  
*Allium oleraceum.*  
*Ornithogalum umbellatum.*  
*Juncus effusus.*  
 — *inflexus.*  
 — *acutiflorus.*  
*Scirpus Tabernæmontani.*  
 — *maritimus.*  
*Carex disticha.*  
 — *acuta.*  
 — *acutiformis.*  
 — *riparia.*  
*Glyceria aquatica.*  
*Avena fatua.*  
*Bromus racemosus.*  
*Hordeum pratense.*

## PEAT.

*Thalictrum riparium.*  
*Radicula palustris.*  
*Erysimum cheiranthoides.*  
*Stellaria palustris.*  
*Sagina nodosa.*  
*Radiola linoides.*  
*Drosera* spp.  
*Rhamnus Frangula.*  
*Lathyrus palustris.*  
*Rubus affinis.*  
 — *opacus.*  
*Potentilla procumbens.*  
*Comarum palustre.*  
*Myriophyllum verticillatum.*  
*Apium inundatum.*  
*Cicuta virosa.*  
*Sium latifolium.*  
*Peucedanum palustre.*  
*Carduus pratensis.*  
*Wahlenbergia hederacea.*  
*Andromeda polifolia.*  
*Erica tetralix.*  
*Utricularia vulgaris.*

*Utricularia major.*  
 — *minor.*  
*Rumex limosus.*  
 — *maritimus.*  
*Orchis latifolia.*  
 — *incarnata.*  
*Habenaria bifolia.*  
*Juncus diffusus.*  
 — *obtusiflorus.*  
*Sparganium minimum.*  
*Cyperus fuscus.*  
*Scirpus fluitans.*  
 — *Savii.*  
*Rhynchospora fusca.*  
*Cladium Mariscus.*  
*Carex teretiuscula.*  
 — *paniculata.*  
 — *filiformis.*  
 — *Pseudo-Cyperus.*  
 — *rostrata.*  
*Molinia cærulea.*  
*Lastrea Thelypteris.*  
*Osmunda regalis.*



## OOLITIC STRATA.

<i>Erysimum cheiranthoides.</i>	<i>Monotropa Hypopitys.</i>
<i>Polygala calcarea.</i>	<i>Verbascum nigrum.</i>
<i>Hippocrepis comosa.</i>	<i>Stachys alpina.</i>
<i>Rubus rudis.</i>	<i>Euphorbia pilosa.</i>
— <i>Bucknalli.</i>	<i>Orchis ustulata.</i>
<i>Saxifraga granulata.</i>	<i>Epipactis latifolia.</i>
<i>Galium erectum.</i>	<i>Gagea lutea.</i>
— <i>tricorne.</i>	<i>Ornithogalum pyrenaicum.</i>
<i>Asperula cynanchica.</i>	<i>Tulipa sylvestris.</i>
<i>Carduus eriophorus.</i>	<i>Blysmus compressus.</i>
<i>Hieracium pellucidum.</i>	<i>Carex Leersii.</i>
<i>Campanula glomerata.</i>	<i>Bromus erectus.</i>
<i>Specularia hybrida.</i>	<i>Brachypodium pinnatum.</i>
<i>Pyrola minor.</i>	<i>Hordeum sylvaticum.</i>

## LIAS.

<i>Papaver Lecoqii.</i>	<i>Viburnum Opulus.</i>
<i>Rhamnus catharticus.</i>	<i>Achillea Ptarmica.</i>
<i>Genista tinctoria.</i>	<i>Carduus eriophorus.</i>
<i>Ononis spinosa.</i>	<i>Cichorium Intybus.</i>
<i>Lathyrus Nissolia.</i>	<i>Anthemis Cotula.</i>
<i>Rubus argenteus.</i>	<i>Lithospermum arvense.</i>
— <i>dumetorum.</i>	<i>Rhinanthus Crista-galli.</i>
— <i>corylifolius.</i>	<i>Anagallis cœrulea.</i>
<i>Rosa systyla.</i>	<i>Ornithogalum pyrenaicum.</i>
<i>Sison Amomum.</i>	<i>Colchicum autumnale.</i>
<i>Silaus pratensis.</i>	<i>Carex pendula.</i>
<i>Viburnum Lantana.</i>	— <i>strigosa.</i>

*Equisetum arvense.*

## TRIAS (KEUPER. NEW RED SANDSTONE).

<i>Silene noctiflora.</i>	<i>Narcissus pseudo-narcissus.</i>
<i>Vicia bithynica.</i>	<i>Galanthus nivalis.</i>
<i>Lathyrus Nissolia.</i>	<i>Polygonatum multiflorum.</i>
<i>Rubus Lindleianus.</i>	<i>Allium oleraceum.</i>
— <i>argenteus.</i>	<i>Ornithogalum pyrenaicum.</i>
<i>Chrysosplenium alternifolium.</i>	<i>Fritillaria Meleagris.</i>
<i>Enanthe crocata.</i>	<i>Schoenus nigricans.</i>
— <i>pimpinelloides.</i>	<i>Carex elata.</i>

## COAL MEASURES.

(PENNANT GRIT. MILLSTONE GRIT.)

<i>Aconitum Napellus.</i>	<i>Geranium rotundifolium.</i>
<i>Corydalis claviculata.</i>	<i>Hypericum dubium.</i>
<i>Cardamine impatiens.</i>	<i>Genista anglica.</i>
<i>Sisymbrium Thalianum.</i>	<i>Ulex Gallii.</i>
<i>Lepidium heterophyllum.</i>	<i>Ornithopus perpusillus.</i>
<i>Dianthus deltoides.</i>	<i>Vicia bithynica.</i>
<i>Sagina ciliata.</i>	<i>Trifolium striatum.</i>
<i>Mœchia erecta.</i>	— <i>filiforme.</i>
<i>Spergularia rubra.</i>	<i>Trigonella ornithopodioides.</i>

*Rubus fissus.*  
 — *sulcatus.*  
 — *nitidus.*  
 — *imbricatus.*  
 — *argenteus.*  
 — *dumnoniensis.*  
 — *Borreri.*  
 — *lasioclados.*  
 — *echinatus.*  
 — *injecundus.*  
 — *dasyphyllus.*  
*Potentilla argentea.*  
*Epilobium lanceolatum.*  
 — *Lamyi.*

*Sedum Fabaria.*  
*Sambucus Ebulus.*  
*Galium erectum.*  
*Vaccinium Myrtillus.*  
*Anchusa sempervirens.*  
*Orobanche major.*  
*Ornithogalum pyrenaicum.*  
*Juncus conglomeratus.*  
*Carex vesicaria.*  
*Calamagrostis Epigejos.*  
*Aira præcox.*  
*Milium effusum.*  
*Asplenium lanceolatum.*  
 — *Adiantum-nigrum.*

## CARBONIFEROUS LIMESTONE.

(AVON GORGE.)

*Clematis Vitalba.*  
*Aquilegia vulgaris.*  
*Cheiranthus Cheiri.*  
*Arabis stricta.*  
 — *hirsuta.*  
*Barbarea præcox.*  
*Diplotaxis muralis.*  
 — *tenuifolia.*  
*Hutchinsia petraea.*  
*Cardamine impatiens.*  
*Viola hirta.*  
*Cerastium pumilum.*  
 — *semidecandrum.*  
*Geranium sanguineum.*  
 — *columbinum.*  
 — *pyrenaicum.*  
*Hypericum pulchrum.*  
 — *montanum.*  
*Tilia cordata.*  
*Erodium moschatum.*  
 — *maritimum.*  
*Trigonella ornithopodioides.*  
*Hippocrepis comosa.*  
*Spiræa Filipendula.*  
*Potentilla verna.*  
*Pyrus latifolia.*  
 — *Aria.*  
*Pyrus torminalis.*  
*Sedum rupestre (minus).*  
*Trinia glauca.*

*Smyrniolum Olusatrum.*  
*Rubia peregrina.*  
*Hieracium sciaphilum.*  
*Centranthus ruber.*  
*Blackstonia perfoliata.*  
*Gentiana Amarella.*  
*Antirrhinum majus.*  
*Veronica hybrida.*  
*Orobanche Hederæ.*  
*Calamintha officinalis.*  
*Taxus baccata.*  
*Ophrys apifera.*  
 — *Trollii.*  
 — *muscifera.*  
*Polygonatum officinale.*  
*Convallaria majalis.*  
*Allium sphærocephalum.*  
*Scilla autumnalis.*  
*Carex pulicaris.*  
 — *digitata.*  
 — *humilis.*  
 — *panicea.*  
*Gastridium lendigerum.*  
*Kæleria gracilis.*  
*Poa compressa.*  
*Bromus erectus.*  
 — *madritensis.*  
*Festuca Myuros.*  
 — *sciuroides.*  
*Brachypodium pinnatum.*

## CARBONIFEROUS LIMESTONE.

(CHEDDAR AND MENDIP.)

*Thalictrum minus.*  
*Helleborus viridis.*  
*Meconopsis cambrica.*  
*Fumaria pallidiflora.*

*Erophila præcox.*  
*Cochlearia officinalis.*  
*Cardamine impatiens.*  
*Thlaspi alpestre.*



*Polygala oxyptera.*  
*Geranium columbinum.*  
 — *lucidum.*  
*Erodium maritimum.*  
*Dianthus gratianopolitanus.*  
*Cerastium pumilum.*  
*Ulex Gallii.*  
*Pyrus Aria.*  
 — *rupicola.*  
 — *intermedia.*  
*Saxifraga hypnoides.*  
*Sedum rupestre (majus).*  
*Galium sylvestre.*  
*Hieracium lima.*

*Hieracium Schmidtii.*  
 — *Cyathis.*  
 — *rubiginosum.*  
 — *stenolepis.*  
*Prunella lacinata.*  
*Spiranthes autumnalis.*  
*Epipactis media.*  
*Carex montana.*  
*Calamagrostis Epigeios.*  
*Kæleria britannica.*  
*Avena pubescens.*  
 — *pratensis.*  
*Ceterack officinarum.*  
*Cystopteris fragilis.*

*Phegopteris Robertiana.*

### CARBONIFEROUS LIMESTONE.

(OTHER OUTCROPS.)

*Pæonia corallina.*  
*Ranunculus parviflorus.*  
*Aquilegia vulgaris.*  
*Helleborus viridis.*  
 — *fætidus.*  
*Erophila præcox.*  
*Draba muralis.*  
*Cochlearia danica.*  
*Helianthemum polifolium.*  
*Viola calcarea.*  
*Silene maritima.*  
*Arenaria tenuifolia.*  
*Hypericum Androsæmum.*  
 — *hirsutum.*  
 — *humifusum.*  
*Lavatera arborea.*  
*Tilia cordata.*  
*Erodium moschatum.*  
 — *maritimum.*  
*Astragalus glycyphyllos.*  
*Rubus fuscus.*  
 — *Gelertii.*  
*Rosa agrestis.*  
*Pyrus terminalis.*  
*Sedum dasyphyllum.*  
 — *album.*

*Eryngium campestre.*  
*Trinia glauca.*  
*Asperula cynanchica.*  
*Aster Linosyris.*  
*Campanula patula.*  
*Monotropa Hypopitys.*  
*Vinca minor.*  
*Centaureum pulchellum.*  
*Lithospermum purpureo-cæruleum*  
*Thymus ovatus.*  
*Lamium hybridum.*  
*Nepeta Cataria.*  
*Chenopodium Bonus-Henricus.*  
*Daphne Laureola.*  
*Carpinus Betulus.*  
*Orchis pyramidalis.*  
*Ophrys muscifera.*  
*Gagea lutea.*  
*Convallaria majalis.*  
*Aira caryophyllea.*  
*Kæleria vallesiana.*  
 — *gracilis.*  
*Poa compressa.*  
*Festuca Myuros.*  
*Agropyron caninum.*

### OLD RED SANDSTONE.

*Ranunculus peltatus.*  
*Viola palustris.*  
*Silene maritima.*  
*Arenaria verna.*  
*Spergularia rubra.*  
*Hypericum pulchrum.*  
*Vicia Orobus.*

*Rubus Lindleanus.*  
 — *pyramidalis.*  
 — *ramnifolius.*  
 — *raduloides.*  
 — *Kaltenbachii.*  
*Rubia peregrina.*  
*Vaccinium Myrtillus.*

*Vaccinium Oxycoccus.*  
*Scleranthus annuus.*  
*Littorella lacustris.*  
*Luzula multiflora.*  
*Scirpus caespitosus.*  
— *pauciflorus.*  
*Eriophorum vaginatum.*

*Carex pilulifera.*  
— *fulva.*  
— *binervis.*  
*Aira præcox.*  
*Deschampsia flexuosa.*  
*Lastrea Oreopteris.*  
*Blechnum spicant.*  
*Botrychium Lunaria.*

## SILURIAN AND TRAP.

*Rubus robustus.*  
— *Leyanus.*  
*Potentilla procumbens.*

*Potentilla argentea.*  
*Fritillaria Meleagris.*  
*Carex axillaris.*



## THE HISTORY OF BRISTOL BOTANY.

When an attempt is made to ascertain the distribution of native plants in a district, especially if the area be rich in curious and uncommon species, the worker is inevitably led into historical investigation. For he will be asking himself questions as to how long such and such a rarity has been known to grow at the spot where it occurs; who it was that first noticed it there; and what kind of record may be found respecting it as a British or as a local plant. Although answers to these inquiries are not to be obtained without tedious research amongst old and scarce books, yet to some minds the subject is not less attractive, nor the work less interesting than other portions of the task set to the author of a local *Flora*. In any case he will learn a great deal in the course of his reading and will probably be led to regard his botanical forerunners with increased respect. As he pores over the time-stained pages of some ancient herbal he may become aware that, across the centuries, he is face to face with a better man than himself, and will render due homage to the learning, insight and industry which, amid many real hindrances and difficulties in that far-off age, produced work so original, exhaustive, and enduring. Few of us know anything of how and by whom the accumulated knowledge which we possess at the present time has been worked out and put together; and if we would diminish this ignorance we must clear away the moss that may have grown upon the tombstones of our predecessors, and chisel out afresh the half-effaced inscriptions.

The botanical history of Bristol is a particularly profitable study on account of the richness of her flora, coupled with abundant evidence that the natural advantages of her surroundings were as widely known in the Middle Ages as they are to-day. That this good repute was established before the date of any printed record, the words used by one of the earliest botanical travellers clearly show. THOMAS JOHNSON says—"ad famosos Divi Vincentii clivos . . . tendimus."\* We find indeed that the primitive British herbalists, with successive writers of eminence in later years, and

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\* *Mercurius Botanicus*, p. 12.

scientific men from other lands on their visits to this country—in fact nearly every botanist of note from the foundation of the British Flora down to the present time—all made the pilgrimage to Bristol as to a botanical Mecca, attracted by the fame of her scenic loveliness and the rarity of her limestone plants. As may be therefore guessed, there exist plentiful references to our flora, with localized records and descriptions, by old writers. Their nomenclature is often vague and diffuse, making recognition of the plants in some cases doubtful; but with the help of those who have studied early British records in their entirety translation is comparatively easy.\*

The dawn of botanical science may be said to have ensued on the invention of printing, the art which gave men a ready means of making known and illustrating their impressions of the world's vegetation. At that day, and long afterwards, botany and physic were so closely allied that successful medical practice implied that the practitioner had acquired an excellent knowledge of herbs. And so we find that all the botanical writers of the sixteenth and seventeenth centuries, with scarcely an exception, were medical men of good standing. They lived in times when no one ever thought of travelling for pleasure; when roads were few and ill-provided with inns; when food and lodging for man and beast must have been scarce simply because there was so small a demand for either; and when every considerable journey was beset with risk and discomfort of which the modern tourist knows little or nothing. That those learned men, prosperous and middle-aged for the most part, should have set forth on excursions through little-known parts of the country—into the remote West, across the perilous tides and Passages of the Bristol Channel, and through wild Wales to her northern mountains—is evidence enough of their desire to make progress in natural science and to gain knowledge at first hand. But if a dash of hardship had to be endured on these riding expeditions there must have been many compensations apart from the fulfilment of a planned purpose. Good fellowship, healthy exercise, the freedom of life in the open air, and the charm of novel surroundings in contrast with the fret and friction of city life at home—we know from our own experience that these were more than sufficient to offset small privations. And pleasant memories doubtless gave that air of cheerful satisfaction which is noticeable in many of the diaries and letters that survive.

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\* See *First Records of British Flowering Plants*, by W. A. CLARKE, F.L.S.



It happens that the earliest original botanical work done in the country was by a celebrated man for some time resident in the Bristol district. WILLIAM TURNER, Fellow of Pembroke Hall, Doctor of Physick, Physician to the Lord Protector, Prebendary of York, and at length Dean of Wells, was unquestionably the first British writer to show any critical judgment in the discrimination of plants. Born about 1510, he developed an early inclination to the study of languages and of natural history. Wishing to learn the names and properties of herbs, he worked at botany whilst holding his Fellowship, getting no assistance beyond the classical writers. He complains that, as a student, he could learn nothing "of any herbe or tree, even amongst the physicians; such was the ignorance at that time." At college TURNER adopted the principles of the Reformers and became a preacher. In that guise he travelled through a great part of the country, finding leisure however to launch some religious polemical treatises. These and his steadfast Protestantism got him into trouble, both in the later years of Henry VIII. and at the accession of Queen Mary. His old friends and tutors Latimer and Ridley went to the stake and TURNER fled the country. While in exile he made good use of the time in Italy, Switzerland, Germany and Holland, studying botany everywhere and impressing a large circle of friends with his extraordinary industry and learning. By the favour of Queen Elizabeth he was restored to his country and to his preferments in the Church, but only a few years of ill-health and weakness remained to him before his death in 1568.\*

The first part of TURNER's Herbal was published in 1551, at a time when for the previous three and a half years he had been debarred from working in "the chefe parte of the day most apte to study—the mornynge— . . . and had no more liberty but bare iij wekes to bestow upon ye sekyng of herbes, and markynge in what places they do grow," conditions which fully account for the small number of allusions to local plants in his great book. Another portion came out in 1562, and the whole was completed two or three years later in spite of many hindrances. The third part was dated from "Welles, June 24, 1564," with an apology—"For surely being so much vexed with sicknes, and occuppyed with preaching, the study of Divinitie and exercise of discipline, I have had but smal leasure to write Herballes." On his first appointment to Wells he

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\* *Life of William Turner*, by B. DAYDON JACKSON, F.L.S.

found himself shut out of the Deanery, and had to make shift with one room in the house of a friend. We can all realize the distraction and strain that he speaks of when obliged to do brain-work amid the noise of his "childher." It would, however, be hard to find elsewhere such a result achieved by one scholar in what spare time he could make and at his own cost. The number of British plants this author was acquainted with is far beyond expectation. He took nothing on trust, but examined all with precision and method, recording his observations and criticizing the opinions of others when his own conclusions did not coincide. His teaching was (p. 153): "Let every man folowe that which he fyndeth to be most true, both by reason and by experience." Many gardens are mentioned. His own were successively at Cologne, at Kew, and at Wells, with "my orchard at Wyssenburg," where he had cultivated critical species and "did diligentely taste" certain aromatic herbs that were not easy to identify. To him Bristol was "the noble citey of Bristow," and "The bath of England is in the west countre in Summersetshire in a citey called in Latin Bathonia, and Baeth in Englishe from the bathes that are in it. This citey of Baeth is XV miles from Welles."

The British Flora is founded on the 238 native flowering plants first described by TURNER. The majority of these are common species for which no special localities were needed; but he states that about twelve of the rarer ones were collected near Bristol and Bath. The local plants included *Linum angustifolium*, *Sinapis alba* (the figure is clearly this and not *S. nigra*), *Prunus insititia*, *Smyrnum*, *Trinia*, *Colchicum* and *Blechnum boreale*. Of *Trinia* it is said: "I found a root of it at Saynt Vincentis rock a little from Bristow"; and the record of *Smyrnum* seems to indicate that the author had visited Steep Holm. Possibly too that island may have been the source of "the good plenty of Samphire" which TURNER enjoyed when "dwelling in the farther of Summersetshyre not far from the sea syde." For pickling this he gives an excellent recipe "which lyketh me and all them that have prove it much better than any other." We know from Shakespeare that in his day the gathering of Samphire, for pickling, was regularly carried on by hardy cliff-climbers. Gerard speaks of "its delightfull and pleasant smell," and of "its spicie taste . . . well agreeing with man's body." The custom of pickling Samphire has now almost entirely ceased; still the writer has often eaten it on the Dorset coast. TURNER noticed Marsh-mallow and Bog-myrtle by the great mere where our turf-moors now lie, and remarked on the local abundance of *Ceterach*



and *Cotyledon*. Although concerned mainly with identifications, descriptions, and the medicinal properties of plants, he did not neglect economic botany. He seems to have introduced Lucerne into England, and sets out the best method for its cultivation and cropping. He descends even to the preparation of bird-lime by an original process. And then he falls foul of New Testament translators, showing plainly that the word "thorns" in the Parable of the Sower should have been rendered "thistles." When he could not hear of any English name for a plant TURNER usually gave it one of his own, prevising—"If any man can fynde any better or fitter name I shal be wel content there wyth." Some of his names failed; others continue to this day, *e.g.*, spindle-tree, toad-flax, willow-herb, wood-sorrel, bitter-sweet. It is indeed a pity for this present purpose that TURNER's worries, infirmities and the ties of his office allowed him so little field-work in North Somerset.

A distinguished botanical author and traveller who did much to arouse interest in British field-botany and gave an impetus to its study was MATTHIAS DE L'OBEL, better known

**LOBELIUS.** as LOBELIUS, a Fleming who settled in England in 1566,\* and became physician to James I.

After working in this country for a while with his friend Pena, they jointly published in 1570 the *Stirpium Adversaria*, through which L'OBEL is chiefly remembered. As a naturalist this author was far in advance of his British contemporaries. He was the first botanist to conceive the idea of arranging plants in natural orders. The *Adversaria* has little bearing upon the medical uses or curative properties of herbs. It is an illustrated descriptive work, in which a great number of species—many British, but the bulk from Southern Europe—are roughly placed in groups very much as they would be to-day under Cruciferæ, Leguminosæ, Labiatæ, Gramineæ, etc. Moreover, some of the plant names used were adopted by Linneus and continue with us unaltered; *e.g.*, *Chrysanthemum segetum*, and *Phlomis Lychnitis*. L'OBEL's industry must have equalled his botanical insight; for within four years his researches enabled him to publish first records for as many as eighty British flowering plants. Ten of these were detected by him near Bath or Bristol. Several are comparatively common, but great interest attaches to two or three of the local discoveries; for instance, *Euphorbia pilosa* at Prior Park where it still grows, and the two prickly-headed poppies found in Somerset cornfields. At that date corn crops must have

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\* B. DAYDON JACKSON, *Flora of Kent*, lvi.

covered a larger proportion of tilled land than they now do, and the last mentioned plants may have been more frequent than they are at present. I cannot fix the date of L'OBEL's first visit to Bristol, but it must certainly have taken place between 1566 and 1570, very probably in 1569, judging from the expressions "superiore anno" and "æstate superiore" used when Bristol plants are mentioned. He must have been here in spring as well as in late summer, for of *Ornithogalum luteum* (Gagea) he says, "Angliæ nemorosis Sommerseti collegimus." And there was a later visit, in 1581, when he was accompanied to Bristol by the celebrated Clusius, then making a long stay in England.\* L'OBEL speaks of travelling by the high road from London through Marlborough and Chippenham, to Bath and Bristol; whence he reached the Channel and Steep Holm on his way into "both Wales and the shires neare thereunto" as Parkinson tells us of him.† Together with a few Swiss friends he went to see the hot springs at Bath, and whilst there found amongst some ruins "in mole templi diruti Bathoniæ," a perplexing plant that cannot be recognized from the description given. Reference is made to it later under *Verbascum*. On St. Vincent's Rocks he gathered several of our rarer flowers, and saw an abundance of a remarkable fern—some variety of Hartstongue—which has long since totally disappeared. He got also *Chlora*, and *Hypericum hirsutum* in Leigh Woods. To him Bristol was "urbs peramœna," a place of pleasant remembrances. We hear of a sunny garden, perhaps on the Kingsdown slope, where L'OBEL was presented with a ripe or well-grown Mandrake—whether fruit or root is not stated, but it was probably the former—and of Edward Saintloo's hospitable entertainment on the Somerset side of the city, where grew plenty of *Carduus eriophorus*.‡ At Steep Holm, where L'OBEL does not appear to have seen the Pæony or the Great Wild Leek, he speaks of plucking a quantity of *Sucedæ fruticosa*, "Blitum fruticosum maritimum" a plant which, from that day to this, has never been met with on our Channel shores. For that reason, and because limestone cliffs are practically impossible for the Shrubby

\* *Charles de l'Escluse, sa Vie et ses Œuvres*, 1526–1609. PAR PROFESSEUR ED. MORREN. Liège. 1875.

† *Theatr. Botan.*, p. 1015.

‡ The St. Los (or St. Loes) were of Norman origin. They were seated in North Somerset for five hundred years, and their ancient memorials can be seen in Chew Magna Church. The Edward St. Loe who entertained L'Obel died in 1578. About that date the family removed into Wiltshire; but the name remains inseparably linked to one at least of the Somerset parishes with which the St. Loes were so long connected.



Sea-Blite—however loath we may be to impute error—we must consider that a mistake was made, and no explanation can now be hoped for. L'OBEL's writings have never been translated into English.

About this time, in 1578, there appeared an English translation of Dodoens' Dutch Herbal—the book which is thought to have inspired Gerard. This handsome black-letter folio, **LYTE.** printed at Antwerp for the sake of the Flemish wood-cuts, was the useful work of the head of an ancient Somerset family—"HENRY LYTE Esquyre, Armiger Somersetensis," of Lytes Cary, whose venerable manor house still stands.\* He flourished as courtier, student and writer through the last years of Queen Elizabeth, and dedicated the translation to his "most dread redoubted Sovereigne." It contains a good number of plants not mentioned in TURNER's Herbal, and the translator added 30 new wood-cuts to the original foreign ones. Although we can gather from him only a few local references of interest—to *Hypericum Androsæmum*, *Saxifraga granulata* and *Salsola Kali*—it is evident that LYTE had a sound knowledge of plants. He cultivated them in his own garden (p. 398), and knew what other herbalists were growing. It might have been expected, therefore, that he would have inserted in his work a larger number of references to the flora of his own estate and of Somerset at large. But doubtless there were reasons for sticking closely to the text of his author. In fact, LYTE wards off criticism in a quaint address to the reader:—"If perchaunce any list to picke a quarrell to my translation, as not being either proper or not ful, if I may obtaine of him to beare with me til he himselfe shall have set foorthe a better . . . . and in the meane while (considering that it is easier to reprehend a mans doing than to amend it) use me as a whetstone to further himselfe withal, I will not much strive: for I seeke not after wayne glorie, but rather how to benefite and profite my countrie."

A generation or so later, in 1597, there appeared "The Historie of Plants" by JOHN GERARD, the most famous herbalist of Elizabeth's reign. The author was a Cheshire man who qualified **GERARD.** as a surgeon and became, late in life, Master of the Barber-Surgeons' Company. He excelled, however, as a gardener and cultivator; and owing to his patronage by the Queen's most powerful minister, Lord Burleigh, enjoyed unusual

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\* *Lytes Cary Manor House, and its Associations.* By WILLIAM GEORGE, Bristol.

opportunities for enriching his gardens with imported novelties. GERARD not only had the superintendence for many years of his patron's fine gardens in London and Hertfordshire, but had one of his own in Holborn where he resided; and this was probably the richest botanic garden then existing, both for the number and the interest of its contents. In his younger days he had voyaged into the Baltic, and had noted plants in Scandinavia, Poland and Russia. He must have travelled likewise over a large portion of his own country, for his Herbal contains the first notice of no fewer than 182 British species. Of these only four were obtained in our district, where his observations had been anticipated by earlier visitors. Among his journeys there were evidently several trips to Bristol. He laments (p. 718) that "when I went to Bristowe faire an ignorant weeder of my garden plucked up and cast away for a weede in my absence" a valued Scammony plant that had prospered exceedingly well with him.\* On another occasion, being sent on a fool's errand (as happens to every botanical investigator at some time or another) to search for *Meum mutellina*, a continental plant, GERARD did his best to clear up the mystery. He says (p. 895), "*Meum* groweth . . . (as it hath been told me) upon Saint Vincents rocke by Bristowe, where I spent two daies to seeke it, but it was not my hap to find it, therefore I make some doubt of the truth thereof." There can be no doubt, as Parkinson suspected later, that this report referred in fact to the presence of *Trinia*. More than three centuries afterwards, while looking over a collection of Swiss flowers, I came upon a specimen of the *Meum* labelled "*Trinia vulgaris*." It was just that same error, made in reverse order, that had caused GERARD disappointment and the failure of his lengthy search. Many observations on Bristol plants by this remarkable man will be found in the following pages.

GERARD's Herbal, however, was far from being original in its entirety.† A large part of it was translated from the work by Dodoens already mentioned, and nearly all the excellent wood-blocks had been "made in Germany" where they had done service for preceding writers. Still, the author had, for his time, an extraordinary knowledge of plants, and his writings show that he was a man of strong sense, discernment and broad views. A single quotation may perhaps be permitted. The passage refers to the

\* In Gerard's time Bristol Summer Fair began on the 25th of July, and continued eight or nine days, attracting traders in almost every business from all parts of Great Britain and Ireland.

† *Life of Gerard*, by B. DAYDON JACKSON, F.L.S.



author's stay at a country house in Herefordshire, where the owner had in his grounds and orchards a very great number of good apple-trees. "The quantitie is such, that by the report of the Gentleman himselfe, the Parson hath for tithe many hogsheds of Syder. The hogs are fed with the fallings of them, which are so many that they will not taste of any but of the best. An example doubtlesse to be followed of Gentlemen that have land and living (but envie saith, the poore will breake downe our hedges, and we shall have the least part of the fruit); but forward in the name of God, graft, set, plant and nourish up trees in every corner of your grounds; the labour is small, the cost is nothing, the commoditie is great, yourselves shall have plentie, the poor shall have somewhat in time of want to relieve their necessitie, and God shall reward your good mindes and diligence." A fine thought, frankly and forcibly stated: by no means that of a charlatan. Little or nothing is known of GERARD's family matters. He was certainly married; but that he was popular with the fair sex in his immediate vicinity is more than doubtful; for he speaks of making "an excellent sallet" of Nux Vomica compounded with meat or butter, for the destruction of his neighbours' cats which scraped in the garden, "spoiling both the herbes and seedes new sowed."

At L'Obel's death, in 1616, his books and plates came into the hands of JOHN PARKINSON, who speaks of "purchasing his Workes with my money,"\* and so being able to publish

**PARKINSON.** a figure of the Sea-Pea from Lincolnshire specimens that had come to L'Obel some time before.

PARKINSON was contemporary with L'Obel, Gerard and Johnson, and known to them all. A horticulturist as well as "Herbarist to the King," he produced several books in the course of a long life. His *Theatrum Botanicum* appeared in 1640, when the author was 73. It is a herbal of 3800 plants after the patterns of Dodoens and Gerard—more accurate and more original, however, than that of the latter—and portrays PARKINSON as a shrewd and able man, of great industry. In addition to all that, it shows him to have been well acquainted with Bristol and her plants. Besides recording 28 species for the first time as natives of Britain, among which were *Lavatera arborea* discovered on the Denny Island off King Road, in the county of Bristol, and *Hypericum montanum* also from this district, he gives us a number of local references expressed in terms that only a personal acquaintance

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\* *Theatr. Botan.*, p. 1060.

with the locality could have suggested. His remarks on the supposed *Meum* at Clifton; on L'Obel's "Mules Fern" from St. Vincent's Rocks; on the abundance of *Asparagus* near Bristol, and many others, are well worth reading if only for enjoyment of the literary charm of the English in which they are written.

To the Bristol botanist, however, the most interesting figure of the seventeenth century is, without doubt, that of THOMAS JOHNSON.

A Yorkshireman by birth, he became a London **JOHNSON.** apothecary in early life, and later, M.D. of Oxford.

As a lad he must have been an industrious botanist, for at the age of thirty he published the first description of a botanical excursion that was ever printed in England.\* He himself states that having been brought up to the art of medicine, he had been "led by intelligent study to search for, and investigate the properties of, whatsoever plants this fertile island of ours affords." About four years later JOHNSON edited and almost rewrote another issue of Gerard's *Herbal*, greatly improving the work and adding to it 800 new plants and 700 figures. But it is his botanical exploration in the vicinity of Bath and Bristol that chiefly interests us. This journey is described in the "*Mercurius Botanicus*" which, together with a tract on Bath and its hot springs, was published in Latin in the year 1634. It seems that in the spring of that year JOHNSON had been residing at Bath as physician in attendance on a lady of wealth and position. On the 14th of July ten of his friends, medical men like himself, "*socii nostris artis*," rode out of London by way of Reading, and proceeded to Marlborough, where they were met by JOHNSON and joined by several other eminent men "*non minus doctissimi quam jucundi*" from Oxford and elsewhere. In these days, used as we may be to Conferences and Associations, it would seem a little odd to see a brotherly band of a dozen doctors setting forth on horseback for pure pleasure; but in olden times, when between the mass of the people and a learned and cultured physician there was an educational gap far wider than it is to-day, the latter naturally looked for mental recreation in the company of his professional fellows. During the next two days the party investigated the city of Bath, the springs and "whatever else was worthy of notice," including the garden of Mr. George Gibbs. The list of plants noted there numbers 117 names, exclusive of varieties—a goodly total for

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\* *Iter plantarum investigatione a decem sociis in agrum Cantianum . . .*  
1629.



a seventeenth century garden even in July. It includes a few of the rarer British species, as well as several from Italy and Eastern Europe. JOHNSON continues :—" Having seen these, we looked around the meadows, stony places, broken ground and the woods at hand, for the sake of plants." The learned and jovial company were hospitably entertained by JOHNSON's patient—Mistress Ann Walter—enjoying themselves quite wisely however, for at dawn of the next morning they were ready to leave the City of Springs. Some of the local men and late comers then went home : the remainder directed their course towards Bristol, " but not by the ordinary road ; for, diverging to the right we reached Mangotsfield and the house of that truly noble and generous man Philip Langley, to whom it is not in our power to offer worthy thanks." Evidently finding his own words inadequate to describe the luxury of the house and the sumptuous meal provided for his company, JOHNSON falls back on Virgil, and quotes a passage descriptive of some similar occasion when " laden tables crowned with wines," huge goblets, drinking cups etc., marked the feast. It is to be regretted that the space devoted to this laudation was not reserved for an account of such botanizing as took place on Rodway Hill and Siston Common. Possibly the Bog-Pimpernel and *Sagina nodosa*, which are included in JOHNSON's list of gatherings, were then found at the spots where they still grow.

Fortunately we know, and can still look upon, the house of entertainment. For in 1612 Mr. Langley bought the Manor of Mangotsfield from Lord Henry Berkeley, and lived until his death in Rodway Hill Manor House. The Langleys were an influential family at that day. One of them had been Mayor of Bristol, and Philip Langley was married to a connection of the Berkeleys. He owned the Mangotsfield Coal Liberty and held other property in the neighbourhood. The Manor House is still a fine survival from a long past age—a venerable homestead with remarkable associations. It has been supposed, but the evidence is very flimsy, that Anne Boleyn was accommodated here when she and King Henry VIII. visited Bristol ; the plague preventing them from staying in the city. " They were the greatest possible friends with Lady Anne Berkeley, who claimed Rodway at that time. It is also said that Catherine Parr has been in the house ; and it is more than likely that Jane Seymour entered it, because her relative married one of the Blounts."\*

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\* *Our Parish : Mangotsfield*, p. 103. By EMLYN JONES.

A few years after JOHNSON's visit Langley died, and in 1663 the property passed to John Meredith, who enlarged the house and laid out a vineyard on the land sloping down to the "Charnells,"—the brook that still runs at the bottom and passes under the railway where Mangotsfield Mill once stood. Rodway Hill was at that time called "The Warren." Such roads as existed were unenclosed; and the footpaths were mainly the original "walks" of the Keepers of the Forest of Kingswood, on the outskirts of which runs the old parish of Mangotsfield.

JOHNSON was now taken in hand by a Bristolian—John Price, "a not less learned Apothecary than a jovial companion who, the day now drawing to a close, accompanied us to the Inn at Bristol. Here we rested until eight o'clock the next morning, and then . . . together with our friend Price, directed our steps to the famous St. Vincent's Rocks, and the precipitous cliffs commanding the banks of Avon. First of all, we reached the well-known spring of tepid water, pleasant to the taste, that flows from a fissure in a huge rock. This spring breaks through at the base of the cliff. When the tide rises it is submerged in the muddy waters of the river, until on the ebbing of the stream it appears once more." The physician and geologist now assert themselves. JOHNSON discourses on the healing virtues of the Hotwell spring and the many ills that should be alleviated by the use of its water. Then he discusses the spars, crystals and "native diamonds" found in the adjacent limestone. Our Avon estuary was examined on both banks almost as far down as its mouth. Then the travellers resumed their journey and rode on through Salisbury to Southampton, and so to the Isle of Wight where they appear to have collected many specimens. Chichester was their next halting-place, and thence it was an easy ride by Godalming and Guildford back to London.

JOHNSON's *Catalogus Plantarum*, the result of observations throughout this trip, contains as many as 816 names. Many of the early-flowering species had probably been noticed by the author during his two months' stay at Bath. The spot where a plant was seen or gathered, however, is not often mentioned. The majority of our limestone rarities are recorded: the exceptions being chiefly those which would be conspicuous only in the Spring. His notes have been made use of in this work, and have been distributed with the other local records for the respective plants. In only one instance may we suspect an error—the stated observation of the Bristol Rock-cress at Bath. Of this no evidence exists in any



herbarium. Obviously JOHNSON was not a man to be lightly accused of stumbling, and one remembers that there have been other reports of the occurrence near Bath of *Arabis stricta*; yet the suggestion of Ray, who lived a generation later, is probably just—that *A. hirsuta* was the plant found by JOHNSON and mistaken by him for *A. stricta* (*Cardamine pumila bellidis folio alpina*).

In the course of his various journeys undertaken for botanical research, JOHNSON noted many species that had not, up to that time, been published as British plants. In his edition of Gerard and his other works here alluded to, we get an addition to the British Flora of 170 flowering plants. Among them are some important items that depended on his observations at Bath and Bristol. The latter include *Ranunculus parviflorus*, *Cardamine impatiens*, *Arabis hirsuta*, *Geranium sanguineum*, *Hippocrepis*, *Vicia sylvatica*, *Caucalis latifolia*, *Veronica hybrida* and *Ornithogalum pyrenaicum*. All these good things still exist in the same localities.

JOHNSON was more than a learned and many-sided man. He must have been an attractive personality, most popular with his fellows—genial, modest and brave. Only a few years later, on the outbreak of civil war, he became Colonel of Horse in the King's service, and was killed in September, 1644, at the siege of Basing House by the Parliamentarians. So perished in the prime of life the most eminent botanist of that age; of whom it was written in a manuscript of the time now at Oxford:—"He was no less eminent in the Garrison for his valour and conduct as a soldier, than famous through the kingdom for his excellency as a physician."\*

We have next a little book with a showy title—"Pinax rerum naturalium Britannicarum"—dated 1666. The author,

CHRISTOPHER MERRETT, M.D., F.R.C.P., was a  
**MERRETT.** Gloucestershire man and one of the earliest Fellows of the Royal Society. His herbarium, among the oldest in existence, is preserved with the Sloane Collections at the British Museum. The catalogue of British plants contained in the "Pinax" is remarkable for a peculiar nomenclature now difficult of interpretation. It gives 46 first records to the British Flora, and, as might be expected from the work of a local man, numerous notices of Bristol plants. Some of the latter were copied from Johnson's books, but the majority are given in some detail and are evidently from personal observation.

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\* See the *Flora of Oxfordshire*, by G. C. DRUCE, M.A.

MERRETT botanized a good deal about Winchcombe in his native county. He says that *Pæonia fœmina* grew there in Stancombe Wood. Several cultivated pæonies seem to have been known as *fœmina*. They were distinguished from *mas* by the shape of their leaves and roots. No importance can be attached to an isolated occurrence of either of them in the pseudo-wild state. A good many notes were made by this writer near Bath; on both banks of the Avon below Bristol; and in Somerset at Winford "where they dig for ochre," as it is well known they did and still do. By far the best of the author's discoveries near Bristol was that of *Erodium maritimum* "over against Saint Vincents Rocks on the further side of the River." Two or three little specimens can still be seen on the verge of the Roman Camp, year by year. His mention of Grass-wrack in the Severn Sea is the only local reference to *Zostera* among old authors. It appears that Goodyer told him of *Sedum rupestre* at Clifton, and thus we get the first evidence of the existence of that plant in Britain. Every writer of the period owed help from Goodyer in one way or another. He must have been a handy man, probably one of those rare, unpretentious persons, who are always busy in aid of other folk's work, and whose diffidence will not allow them to publish anything in their own names. John Goodyer (1597-1664) of Maple Durham, near Petersfield, by virtue of the large number of rare plants which he discovered and of his services to contemporary botanical literature, should undoubtedly stand at the head of Hampshire botanists. Johnson's earlier mention of finding *Arabis stricta* at Bath having proved erroneous, the first record for it as a British plant is ascribed to Ray. MERRETT, however, not only copies Johnson's words, but adds "and in Denbighshire." This curious note, in view of the discovery of the plant in Radnorshire two centuries afterwards, makes one much long to know less vaguely what information MERRETT had.

Systematic botany, founded by Lobelius,\* made little or no progress during the next century until a new era was established

by the talents of JOHN RAY (1627-1705), than whom no  
**RAY.** one has made a larger addition to the botany of his  
 country. He, like Turner, was a highly accomplished  
 man, of wide learning and great industry. His reputation rests  
 upon achievements by no means confined to botany, or even

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\* That is to say, he attempted the development of a natural system of plant classification based upon the actual relationship or affinities of the species he observed.



to natural history in its widest sense ; but for us RAY is the memorable botanist who wrote between 1670 and 1696 the *Historia Plantarum Generalis* ; the *Catalogus Plantarum Angliæ* ; and the *Synopsis Methodica Stirpium Britannicarum*. These publications mark what was practically the end of the period of herbalists. The last is the most noteworthy as being the first systematic Flora to treat solely of British plants. Three editions, in all, were published. The second, that of 1696, contained full 1600 species—mosses, lichens and toad-stools being included. RAY's book continued to be the standard work on British botany until Hudson introduced the Linnean system into England. This was a period termed by Linneus "the golden age of Botany," when people began to talk of genera and species, and became enthusiastic students of sedges, grasses and cryptogams,—the so-called lower orders of vegetation. Helped by his disciples RAY was actually enabled to make an accession to the British Flora of about 500 new forms.\* Not all of these stood the test of later examination, but most of them proved to be permanent additions. The excisions have been marvellously few. Although a good number depended on notes and specimens furnished by friends and correspondents—Bobart, Buddle, Doody and Newton among the rest—yet RAY's own extensive journeys in search of plants through Scotland, Wales, and the majority of English counties, produced a plentiful harvest of gatherings by which his publications were enriched. His third tour in 1662 brought him from Pembrokeshire to Bath and Bristol on his way to Devon and Cornwall. In the summer of 1667 he again passed through Gloucester and Somerset, taking notes on various subjects and making ample additions to his collections. Thomas Willisel, an unlettered companion or assistant, sometimes travelled with RAY and rendered valuable services. The result of these western researches is that most of the rarer Bristol plants that had escaped notice by earlier observers are recorded by RAY ; and many other local notes of interest are to be found in the *Synopsis*. He himself discovered *Erodium moschatum* at Clifton, *Vicia hybrida* on Glastonbury Tor, *Littorella* on the peat moor, and *Euphorbia platyphyllos* near Keynsham ; whilst *Arabis stricta*, *Hutchinsia*, *Helianthemum polifolium*, *Allium Ampeloprasum* and the Cheddar Pink were reported to him by others. None of these had previously been published as British plants. RAY was the first to notice *Scilla autumnalis* on St. Vincent's Rocks,

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\* Pulteney's Sketches, p. 252.

and the discoid variety of *Aster Tripolium* by the tidal Avon—as abundant then as it is to-day. He points out that Dr. Stephens had lately detected *Scirpus Holoschænus* in Somerset, where for generations hardly an eye had set on it until Mrs. Gregory discovered her clump on the Channel sands some fifteen years ago. The “*Lycopsis anglica*” found by L’Obel among corn on the London road, and which “no man since him hath been able to discover,” is concluded with reason to be nothing but the common *Echium*. No better instance of RAY’s keen observation can be mentioned, however, than his accurate description of the rooting habit of the barren stems of *Lithospermum purpureo-cæruleum*, which he had seen in Somerset. “In hac specie, reliquis prociduis et repentibus, caulis ille qui flores sustinet erigitur.” After his time this remarkable feature in a Boraginaceous plant remained unnoticed by authors until two centuries had elapsed. Thos. Willisel got the Bath Asparagus on a hill three miles out of Bristol towards Bath—possibly at Stockwood, which is still the nearest locality for us. Oddly enough Merrett speaks of the Common Star of Bethlehem in exactly the same words, thus suggesting some confusion between the two species. There is nothing to show who was the Mr. Jolliff who told RAY that *Sambucus laciniata* grew “near Bristol.” Here again we find precisely the same entry in Merrett’s *Pinax*. Either Jolliff told both authors, or one copied the other. Where is that Elder-tree now, or its descendants? Dr. James Newton was one of the most active of RAY’s helpers. He it was who discovered *Arabis stricta* at Clifton and showed it to his friend; and he seems also to have been the first to notice the great round-headed leek on the Steep Holm. The Pæony could hardly have been overlooked had it been on the island at that time, and as no mention of it is made by any early visitor to the Holm, we may conclude that this plant was quite a late introduction—probably in the latter half of the eighteenth century. It looks, indeed, as if the Smyrnium, Leek and Pæony were introduced in the order named at different periods. There are but few ambiguities in RAY’s book. One or two of his friends made a jumble of their localities, as is perhaps excusable when men travel over new ground. Thus, Mr. Richard Kayle brought *Hutchinsia* to Bobart “from S. Vincents Rock near Gorams Chair in the parish of Henbury, 3 miles from Bristol”; and we might have doubted if the plant had really been found in Henbury Combe at all, had not J. Sherard reported afterwards that he had seen it there “on the low rocks just over against the Chair,” stating also more correctly that Goram’s Chair was about



five miles from Bristol. One most puzzling local allusion is to be met with in the *Synopsis*,—to a plant collected by Dr. Plukenet “on the Severn shore not far from Weston-supra-Mare.” This is named *Polygonum maritimum longius radicatum nostras*, and cannot now be identified. Robson (*British Flora*, p. 215 [1777]), refers it to *Herniaria lenticulata* L., and Hudson (*Fl. Anglica*, ed. ii., p. 108), also puts it under *H. glabra* as var.  $\beta$  *lenticulata*. One cannot suppose that this was the real Linnean species, or even allied to it. For RAY knew the Lizard plant as “*Herniaria*,” and he could not have named that from Weston “*Polygonum*” had it been the same thing or near it.

The third edition of Ray’s *Synopsis* was issued some years after the author’s death under the editorship of a foreigner, JOHANN JACOB DILLENIUS (1687–1747), who had been induced by Dr. Sherard to leave his native Germany and come to England in 1721. DILLENIUS, although so young, had already established a reputation by his great knowledge of Cryptogams. With the help of the brothers Sherard and their friends in providing material he was enabled, within three years, to describe and add to the *Synopsis* about 250 new species of Musci, Fungi and Algæ—now for the first time divided into genera on a systematic plan—and over 200 Phanerogams. William Sherard, his wealthy and enthusiastic patron, was liberal enough to promote the study of the science he loved by endowing a chair of botany in the University of Oxford, stipulating that DILLENIUS should be the first Professor. The new teacher was so able and so diligent that his supreme fitness for the post has never been questioned. One of his books alone contained descriptions and figures, all drawn and etched by his own hand, of 417 plants, chiefly new exotics; while he likewise executed the 85 plates that illustrate about 600 species in his *Historia Muscorum*. In 1726 he wrote of being so busy in painting Fungi that he had little time for correspondence. To give himself, however, all possible opportunity for making further botanical discoveries in this country, DILLENIUS undertook, in the summer of 1726, a two months’ journey, accompanied by Mr. Samuel Brewer. The friends came first to Bristol, then visited the Mendips, Cheddar, Uphill and Brean Down; and went on into Wales through Gloucestershire, Worcester and Salop. Brewer certainly had been over part of that country before, as his discovery of the Cheddar Pink with mention of other Mendip plants was published in 1724. He continued the search for mosses in Wales throughout the

following winter, and forwarded additional collections to his colleague. An account of this joint excursion, written by DILLENUS, is still extant and is interesting reading. It takes note of all the more remarkable plants of this district, and gives us the first Somerset records for *Trinia*, *Meconopsis* and *Saxifraga hypnoides*. At Uphill and Brean Down, on July 16th, 1726, DILLENUS made a discovery which would have entitled him to distinction among field-botanists had he not already become eminent for acute perception and skill in diagnosis. The *Kœleria* he then detected remained unheeded by all succeeding generations of botanists who walked over the ground until 1904. In that year DILLENUS' original specimens were noticed in the Sherardian Herbarium by Mr. G. C. Druce, unlabelled and therefore not arranged in place. Subsequent search brought to light the mislaid label on which had been written a full description of the grass and its peculiarities, together with an identification of it with a continental plant named by A. Scheuchzer in 1716, and particulars of the places where the discoverer had gathered it "satis copiose" and where it was readily refound. An excellent drawing had likewise been prepared, intended doubtless, as Mr. Druce suggests, for a further edition of Ray's *Synopsis*. It was in this curious way that *K. vallesiana* became added to the British Flora and to that most interesting group of rare species which is confined to the West of England and mainly to the vicinity of Bristol.\*

A few years later the name of Linneus and his adventurous ideas on classification began to be talked of throughout Europe. The fame of the learned DILLENUS and of the Sherardian collections brought the great Swede to England in the spring of 1736. His visit to Oxford led to a firm friendship with the Professor, who is said to have been so highly impressed with his merit that he endeavoured to persuade Linneus to settle in England. But we cannot be surprised that the veteran did not become a proselyte and adopt the new method then placed before him. At that time it was not perfected, and DILLENUS thought it would not take hold. A year or two afterwards, however, Linneus completely unfolded and illustrated in two or three publications his Sexual System with its binomial nomenclature; and then the simplicity, precision and convenience which marked his innovation soon gained for it the adherence of botanists, and its popularity quickly extended. The rapidity with which professors and students

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\* See an article in *Journ. Bot.* 1905, p. 313, by G. C. Druce, M.A., F.L.S.



adopted the teaching of Linneus is, indeed, a proof of their conviction of its excellence and of the advantages it offered.

A natural consequence of this change of thought was the remodelling of English Botany according to the rules of the new school. That work was undertaken by WILLIAM HUDSON, F.R.S., who published his *Flora Anglica* in 1762, a year  
**HUDSON.** that dates the full establishment in England of the Linnean names and arrangement. This author had no doubt botanized a good deal in various parts of the country. Unfortunately we have no particulars of his doings in the West. His book contains many references to Bath and Bristol, and some of these must have been the result of personal observation, but it is not easy to distinguish his own records from those communicated to him by friends; as the authority for borrowed statements is not always given. For instance, HUDSON mentions Asparagus at Bristol as though he had seen it there himself, but the mis-spelling "Look's Folly" betrays a copy from Ray. Discoveries had been accumulating since 1724; many species therefore now appear for the first time in a British list, and two of these had been found in this district. The *Briza minor*, reported by D. Alchorne from Bath, must have been a stray weed. But *Geranium rotundifolium* is on another footing. This cranebill may have been known to one or two earlier botanists; but it was first published as British in the *Flora Anglica* from HUDSON's observation of it about Bath and Bristol. The plant is so abundant in this neighbourhood that one does not understand why former observers failed to record it. It must, I suppose, have been confused with *G. molle*. Other Bristol plants for which HUDSON may claim credit are, *Diplotaxis muralis*; *Lathyrus sylvestris*; *Vaccinium Oxycoccus*, noticed near Glastonbury (one of our scarcest plants but still known, I believe, on the peat moor); *Utricularia minor*, also from near Glastonbury; and *Allium oleraceum* from our well-known station on the tidal Avon. HUDSON seems to have got *Hutchinsia* at Uphill, a likely enough place for it, but I am not aware that anyone else ever found it there, and my own searches have been fruitless. His "Cistus salicifolius" at Brean Down is the *Helianthemum polifolium*; and his "Trifolium stellatum . . . prope Bristolium copiose" is not the clover now known by that name, but *T. maritimum*. Another record that has been copied into many books on this author's authority is for "Phleum paniculatum . . . in pratis, infra King's Weston prope Bristolium." This is a foreign grass (*P. asperum* Jacq.), which

would occur in England only as a casual. *Arabis stricta* received its present name from HUDSON, and there is a very good description in the *Flora Anglica*, save that our Rock-cress is set down as an annual. He seems to have felt some perplexity about this plant. He concluded, apparently, that an error had been made by his predecessors, and that two different things had been recorded under the pre-Linnean name of *Cardamine pumila bellidis folio, alpina*. So he introduces a continental species, *Cardamine bellidifolia*, to represent the *Arabis* which had been reported from Ripon, Bath and Denbighshire; and makes both that and *A. stricta* grow upon St. Vincent's Rocks! This tangle is knotted up further by Withering, ed. iii, p. 577, (1796); who wrote of *Cardamine bellidifolia* that it was "not now to be found on St. Vincent's Rocks. And Mr. Griffith informs me that the *Arabis stricta* now grows in the places near Denbigh where the *Cardamine* was said to grow. The specimens before me [of the *Cardamine*] were gathered wild in Scotland, and sent me by Mr. Milne." To unravel all this now is, of course, impossible.

HUDSON's concise Latinity did not commend his book to the multitude. The *Flora Anglica* reached only a second edition. By that time a love of wild flowers for their form and beauty and not solely for their properties as simples had developed among the people; and there were many who felt desirous of making a closer acquaintance with the plants of their country.

The *Arrangement of British Plants*, published by WILLIAM WITHERING, M.D., F.R.S. in 1776, met a popular want successfully.

Written in English, with full descriptions, details of habitats, and the addition of many interesting notes on economic and medical botany, the book sold well. The author, his son, and another editor after both were gone, did all that was possible to keep each successive issue level with the times by correcting, condensing and illustrating the original; with the result that thousands of copies were in use well on into the nineteenth century. The eighth edition appeared in 1840. In fact the *Arrangement* is not yet quite done with, for in 1907 I met a lady who was making out the names of some flowers by the help of an old copy of WITHERING. Tied by the claims of a large practice in Birmingham (his income is said to have been bigger than that of any physician of his day out of London), and by health so feeble that his later winters were passed in Portugal, it seems wonderful that WITHERING could have written these four volumes in addition to papers and pamphlets—



medical, chemical and mineralogical. He died, aged 58, in 1799. A medical writer says—"WITHERING'S 'Botany' has become a classic, but great as his work as a botanist is, he is infinitely greater as a therapist. His discovery of the true action of foxglove was performed quietly and without the dramatic effect of new surgical methods, and yet WITHERING deserves to rank as one of the greatest benefactors of mankind, for digitalis has saved millions of lives and given relief to untold numbers of sufferers." His book is full of references to Bristol plants, either as seen by himself or as reported to him by his correspondents, of whom the chief were Dr. Stokes and the Rev. Geo. Swayne. Dr. Broughton and Mr. Ford also sent information from Clifton. WITHERING gives the year 1793 as the date of his visit to Bodmin (for *Physospermum*) and to the Lizard. As he would almost certainly pass through Bristol on the way to Cornwall, it was probably in the same year that he examined St. Vincent's Rocks and stayed at Glastonbury to inquire about the "Holy Thorn." He says there was no tree within the Abbey bounds, and conjectures that the originals had died from age, or had been destroyed at the time of the Reformation. But he was directed to an extremely old tree "beyond the churchyard on the other side of the street," and to another two or three miles off. Possibly the latter was the tree in Baltonsborough Parish described by Murray in *Fl. Somerset*. It was cut down not long ago by a farmer who resented the trespassing of visitors. WITHERING himself saw *Turritis glabra* on St. Vincent's Rocks, whilst Swayne got it in quarries by Bath. Since that time there has been no evidence of the plant's occurrence at Bristol. The *Erigeron canadense* found at the same time was no doubt an interloper, and a rare one, for this alien seems to hold aloof from the strangers that spring up about our docks and rubbish-heaps. I have met with but few specimens during my residence in the city. All the other important Clifton and Avonside plants that are recorded for the first time by WITHERING are still with us, and in the same spots with but few exceptions. Among them are the following:—*Aquilegia*, *Reseda lutea*, *Geranium columbinum*, *Medicago arabica*, *Trifolium striatum*, *T. scabrum*, *Spiræa Filipendula*, *Pyrus Aria*, *Apium graveolens*, *Bupleurum tenuissimum*, *Erigeron acre*, *Veronica officinalis*, *Calamintha Acinos*, *C. officinalis*, *Verbena*, *Rumex pulcher*, *Carex pulicaris* and *Sclerochloa maritima*. In addition, we have notices of *Ornithopus perpusillus* and *Festuca bromoides* on Brandon Hill; of *Arabis Thaliana*, *Trifolium subterraneum*, *Senecio sylvaticus* and *Aira caryophyllea* near Mangotsfield; of *Helleborus*

*foetidus* and *Hippuris* in Tortworth Park; and of Snapdragons “on Berkeley Castle and Church in rich profusion.” We get the first mention of several Cheddar plants, and find among them *Dianthus deltoides* reported by Mr. Crowe, and the white-flowered variety (*glaucus*) by Mr. Swayne; neither of which records has ever been confirmed.\* Then there is a broad-leaved Thyme at Wookey Hole; *Lathyrus Nissolia* and *Orchis ustulata* at Wyck; *Cephalanthera grandiflora* at Uley and the fact that Woad was then cultivated at Keynsham. It appears that Lady de Clifford had a botanic garden at Kingsweston House, whence, perhaps, some curious and uncommon species that now adorn the grounds and shrubberies have been derived. Drs. Stokes and WITHERING visited the mansion and noted a few things that were conspicuous on the confines of the Park:—*Cochlearia anglica*, *Lepidium rudemale*, *Glaux* and *Lepturus filiformis*. Both the Fly and the Bee Orchis were found “on the high ground at the back of the old Well House, St. Vincent’s Rocks”; and it is stated that the former was the more abundant of the two. That high ground is no longer so much favoured. From a paragraph on *Ononis* we gain still more light on the interesting question how much or in what way has the vegetation of our Downs altered since the time when they were glorious furze-covered commons—Nature’s unfenced gardens—perilously pitted with mine shafts. Our author says that he found *Ononis arvensis* in great plenty on St. Vincent’s Rocks, and examined a large number of specimens in a search for the spinous variety which he could not meet with. I doubt if any form of the genus can now be found in that locality. Neither furze nor rest-harrow can withstand the trampling of many feet, and so they both had to go. Stokes and WITHERING are commemorated in systematic botany by several species and varieties that had not been previously understood and which they differentiated and named. There stand to the credit of the former *Chelidonium laciniatum*, *Galium tricornis*, *Verbascum virgatum* and *Carex rostrata*; and of the latter *Cardamine flexuosa*, *Silene maritima*, *Geranium lancastriense*, *Alisma lanceolata*, *Agrostis nigra* and one or two others.

The REV. GEORGE SWAYNE (1746–1827), so often quoted by Withering, was Vicar of Pucklechurch, Rector of SWAYNE. Dyrham, and author of a work on grasses entitled “Gramina Pascua” which was illustrated with dried specimens, “a work extremely well calculated to spread a

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\* Several old botanists, however, call the Cheddar Pink *D. glaucus*.



knowledge of grasses among farmers and gentlemen . . . who do not find leisure to enter minutely into botanical enquiries.”\* He furnished Withering with the names of a large number of plants gathered in and about his parishes. The majority of these are grasses and sedges of no especial interest; but we find that this botanist made also a good many references to Wyck Rocks and to Clifton. The more important Bristol plants for which we owe the first records to SWAYNE are *Malva rotundifolia*, *Trifolium medium*, *T. arvense*, *Anthyllis*, *Sedum album*, *Carduus pratensis*, *Inula Helenium*, *Plantago Coronopus*, *Nepeta Cataria*, *Gymnadenia conopsea* and *Kæleria cristata*. Among the sedges are two inhabitants of spongy bogs which, unfortunately, have not been refound in the localities communicated to Withering. These are *C. filiformis* and *C. limosa*, the first stated to grow at Shortwood, Pucklechurch; and the second on Mendip. It may be supposed that the plants have been lost by drainage, or we may suspect an error. Although SWAYNE certainly had an excellent knowledge of grasses and their use in agriculture, he was not entirely reliable when dealing with other natural orders. It is necessary to mention one important slip which led to much trouble in after years—the mistake by which *Vicia bithynica* was reported as *Lathyrus hirsutus*, a species practically confined to Essex and Surrey. This error, published by Withering, was repeated by Babington in *Fl. Bathon. Suppl.*, and by Swete in his *Flora Bristolensis*. It became even more widely disseminated in works of general importance, such as Bentham’s *Handbook of the British Flora* and Anne Pratt’s *Flowering Plants of Great Britain*, where *L. hirsutus* is cited as a Somerset plant. SWAYNE’s *Salvia pratensis* from Wyck was probably a casual among sown grasses; and his *Melampyrum sylvaticum* (an alpine species), also from Wyck, is believed to have been a variety of *M. pratense*.

Withering had a diligent Bristol correspondent in Dr. ARTHUR BROUGHTON, Physician to the Royal Infirmary from 1780 to 1786, when he was succeeded by the first Edward BROUGHTON. Long Fox. He published several botanical works, including an anonymous volume of brief diagnoses of British plants. Subsequently he settled in Jamaica, and died there a few years later. His name is preserved in the genus of Orchids named *Broughtonia* by Robert Brown. Whilst at Bristol Dr. BROUGHTON had discovered *Bupleurum*

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\* Withering, ed. iii, vol. 2, pp. 118 and 167.

*tenuissimum* by the tidal Avon below the city; and in company with Dr. Stokes he found a new locality for *Asparagus*. In the *History and Antiquities of the City of Bristol* by William Barrett, Surgeon, F.S.A., Wraxall, 1789, there is "A catalogue of the rarer plants, etc., found about St. Vincent's Rock, by the ingenious physician and botanist DR. BROUGHTON, of Bristol." The Doctor had cast a wide net, for his list contains *Arenaria rubra*, *Galium montanum*, *Galeopsis Ladanum*, *Monotropa* and *Cystopteris fragilis*. His collections, chiefly botanical, were bequeathed to the city and deposited in the City Library, King Street.\* No one knows what has become of them, and the City Librarian tells me there was no trace of such collections at King Street when he took office in 1893.

In 1767 our long series of medical and clerical botanists was broken by the visits to Bristol of a layman of rank and fortune, a personage of 24 years, who had already during his **BANKS.** Oxford career devoted himself with the greatest zeal and activity to the pursuit of natural history studies; and whose talents and generosity soon raised him to the most influential scientific position of his age. SIR JOSEPH BANKS (1743-1820), for forty-two years President of the Royal Society, now comes under notice as a Bristol botanist. He is said to have acquired a taste for his hobbies at Eton, and to have spent more time in fields and woods than in studying the classics. Whilst a gentleman commoner of Christchurch he collected plants and became a college authority on botany and zoology. Through his explorations many species were added to the Oxfordshire Flora. On leaving Oxford and coming into his patrimony, Banks at once made a voyage to Newfoundland and Labrador in search of plants, birds, beasts and fishes; and not long afterwards joined Captain Cook on his first expedition round the world, taking with him assistants and appliances for the preservation of specimens. It was in the interval between these voyages that we find him in this neighbourhood. The Journal of his first Bristol excursion, written by BANKS, has most fortunately fallen into the hands of Mr. Spencer G. Perceval of this city, who published it with some instructive notes in the *Proceedings* of the Bristol Naturalists' Society, 1899. From this we learn that, at the middle of May, 1767, BANKS posted down from London into Dorset on a visit to some relatives, observing plants from the windows of his chaise and making notes on every interesting thing he met with.

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\* Rev. John Evans, *Picture of Bristol*, ed. iv., 1828.



A week later he passed through Bristol to Aust Ferry and the Wye for a stay at Piercefield. Many plants are recorded about Chepstow and the Wyndcliff; and BANKS remarks upon the roomy berthing for large shipping in the Wye at Chepstow, when compared with much inferior accommodation at Bristol in the shallow Avon waterway! Floating harbours, docks and dredging have done much since that time to redress the inequality. On May 26th, BANKS returned by Old Passage and rode to the Hot Wells through Westbury-on-Trym. There he saw great abundance of *Hutchinsia* on a wall. We have plenty of evidence that the plant formerly grew on several old walls in Westbury, at a time when masonry about farmsteads, rick-bartons and cottage gardens was substantially built without much mortar. Such walls gathered a good deal of soil in the course of years and seldom needed any repair. If a portion fell down and was rebuilt, the new bit was speedily re-furnished with plants from the adjoining older part. No *Hutchinsia*-walls exist now. The last one known to me was at Eastfield. It bore rather fine specimens until about 1885, when all were destroyed by a too thorough repointing. None has reappeared in the queer way that *Sedum dasyphyllum* sometimes has—of seeming to force its way out through the new mortar; but the latter of course has a perennial root. In company with a friend our traveller had several rambles about Clifton, and found many of the best plants; including Fly Orchis on the Down slopes and *Trifolium maritimum* in the meadows under Cook's Folly, where it is still plentiful. Then came a few wet days, spent at Wells, Cheddar, Okey Hole (the word is thus spelt by many writers), and Glastonbury. *Vicia lutea* could not be seen on the Tor Hill; but, as BANKS opined, it could hardly have been in flower so early. In the Abbey he says he was "almost bit to death by the Gnatts." Rain prevented an extensive ramble on the peat moors, so that only Sundews, Sweet Gale and Bladder-wort were noted. On June 4th he was back again "on the Rocks over the Ferry," where nothing was found that had not been seen before save only some *Asparagus* "in a salt-marsh under the wood very near opposite to Jackson's Tower," (Cook's Folly); just where I myself have seen it. Brass-works, museums and archæology filled up most of the remaining time; but for the 18th and 19th BANKS makes botanical entries from St. Vincent's Rocks. He "discovered by accident an immense quantity of Bulbs, probably of *Scilla autumnalis*, growing on the very Brink of the precipice nearest the Limekiln on the sides of the Zigzag walk: also abundance of

*Ophrys apifera*, now in full perfection." Going "in search of the *Veronica hybrida* which I heard from Mr. Catcott\* had been found upon St. Vincent's Rocks, found it sparingly on the Ledges of Rocks on my way down to Giant's Hole." The last plant set down in this Journal is *Ornithogalum pyrenaicum* near Keynsham, on the high road to Bath and London.

The year following, in company with Dr. Solander the favourite pupil of Linneus, Sir Joseph sailed with Captain Cook as has been mentioned, returning in 1771; and in 1772 the two botanists went to Iceland and the Hebrides. But 1773 witnessed an exploration of more interest to us. For BANKS joined the Rev. John Lightfoot in a journey through Bristol into Wales, an account of which is accessible through a transcript made from Lightfoot's Journal by Solander and preserved in the British Museum.† Lightfoot was a Gloucestershire man, a practised botanist, author of the *Flora Scotica*, and Librarian and Chaplain to the Duchess of Portland. The friends set out towards the end of June, and their itinerary was as follows:—Bath, Keynsham, Bristol, Chepstow and Tintern, Cardiff, the Holms and Brea Down. Then Glamorgan, Pembroke-shire, and so northward to Snowdon and Anglesey, until the 16th of August, when they returned to London *via* Chester. On the whole they kept to the trail of older botanists, through well-known hunting-grounds, famous from the earliest times. Lightfoot's record mentions only the rarer plants that were encountered. At Bristol, where botanizing commenced, BANKS no doubt would have taken his companion to the spots he had visited six years before, and so we find a recurrence of the same notes on Clifton rarities. But there are some important additions. By this time it must have become difficult to find a new plant about Bristol, yet BANKS and Lightfoot got two good ones that had hitherto escaped detection. These were *Tragopogon porrifolius* from the low ground under Cook's Folly (the note antedates Sowerby's gathering by some twenty-five years and so makes a first record for the plant at Bristol); and *Bromus madritensis* "upon the Rocks above the Well." Nor can I find an earlier mention of *Potentilla verna* in this district than Lightfoot's notice: "plentifully near the May-Pole."

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\* The Rev. Alexander Stopford Catcott, Vicar of Temple, Bristol; died 1779. He bequeathed two cabinets containing fossils and minerals with a few coins and books to the City Library.—Barrett; *History of Bristol*, p. 512.

† This Journal was published in full with some relative letters and comments by the Rev. H. J. Riddelsdell in *Journ. Bot.* 1905. To that publication I am indebted for the information here given.



Then there is "*Ophrys muscifera* in a wood just under Cook's Folly, plentifully." The wood was then much more extensive than at present. A good deal of the hillside has been enclosed, and much of the lower part cut away in making the two lines of railway. Since that last disturbance I doubt if many Fly Orchis have been found there: certainly the wood has been well searched several times of late without result. With the Tragopogon they got Asparagus, as Ray had done a century before, although BANKS could not find any at the place on his first visit. Some fruiting specimens of *Arabis stricta* were noticed "upon Ledges of the Rocks, beyond the *new wellhouse* a little above high water mark. It was out of Flower." The spot would have been near the bottom of the Gully. I can find nothing conclusive to show that this plant ever grew on St. Vincent's Rocks as limited to the Observatory Hill or limestone south of the Great Fault. Its range begins at the tunnel under Bridge Valley Road.

Resuming their journey on June 26, BANKS or Lightfoot found time to note "Upon a high Bank by the River Side, just above Aust Passage found again *Trifolium maritimum*." The locality is not elsewhere on record, but it is likely enough that the plant still exists. On Saturday, July 3rd they reached the Holms. Flat Holm forms part of Glamorganshire, but Steep Holm is geographically in North Somerset; and moreover has belonged to Bristol ever since the city was made a county by Edward III. So we have interest in reading the following:—"Upon the Steep Holmes *Smyrniolum Olusatrum* and *Ligustrum vulgare* are the prædominant plants on the Top of the Island, which totally cover it; a little of the *Conium* is mixed with it. Upon the Rocks on the South Side grow *Inula crithmoides* [the only Somerset habitat], *Crithmum maritimum*, *Statice Limonium* [no doubt *Limonium occidentale* O. Kuntze, and its earliest known occurrence in the county], *Asplenium marinum* [a new locality for district 9 in *Fl. Som.*], *Lavatera arborea* in inaccessible Places near the Top of the Rocks, *Allium ampeloprasum* near the Stone Gateway at the Landing Place. *Euphorbia Lathyris* MR. BANKS found one plant of it upon the Island. [The earliest British record for this species.] *Geranium maritimum* not so plentifully as at the flat Holmes. *Cistus polifolius* upon the Top of a peninsula call'd brean down a mile from Uphill in Sommersetshire, facing South West, at this Time in full flower. This Down is about 2 miles from the Steep Holmes. *Ruppia maritima* [*R. spiralis* Hartm., which has been recorded from this locality several times since] in the Ditches in the Marsh

going from Brean Down to Uphill." Thence the friends passed back into Wales, and the rest of their doings do not immediately concern us. Lightfoot wrote to BANKS shortly after their return :— " I can truly say I never became a Party in any Scheme which afforded me more Satisfaction or sincere Delight. . . . I believe it may be said without vanity, that few, if any, Botanical Excursions in Great Britain have exceeded our Collection, either in Number or Rarity of Plants or Places." It became customary, at a later period, to regard SIR JOSEPH BANKS as a patron of science rather than as a scientific man, but there can be no doubt that he possessed thorough botanical knowledge. From British botany, it is true, he soon passed to more imperial pursuits and duties. His splendid natural history library and rich collections were bequeathed to the nation.

Passing on a few years, we come to WILLIAM CURTIS (1746–1799), an apothecary practising in London, who wrote and lectured on botany, and projected two remarkable illustrated **CURTIS.** works, the *Flora Londinensis* and the *Botanical Magazine*. These splendid books are well known in Bristol, where CURTIS had relatives, and where some of his descendants still reside. A very acute and observant botanist, he distinguished and described many plants which had not been remarked by his predecessors. On coming to Bristol in 1793 he gathered by the river-side under St. Vincent's Rocks a new grass, which he figured and described as *Poa procumbens* (now *Sclerochloa*). To our rare *Bromus* he gave the specific name *diandrus*, as the Linnean *madritensis* was found to be an aggregate that included also a Channel Islands grass (*B. rigidus* Roth.). The chief *Cerastium* of the Bristol Flora (*C. pumilum*) was differentiated by CURTIS through specimens obtained from Croydon, two years after his Bristol visit. It seems a little odd that the plant did not attract his attention when at Clifton; but in a hot dry spring it soon vanishes. He himself botanized chiefly in the North and in the home counties, but his gardener, Robert Squibb, was also sent afield to get plants. By his help *Agrostis setacea* was secured from Piddletown Heath in Dorset—an entirely new species. This was figured in *English Botany* from a specimen out of CURTIS' Chelsea garden, whence a good many other illustrations for that work were obtained.

Another apothecary who attained some celebrity at the close of the eighteenth century was WILLIAM SOLE, of Bath, (1739–1802). He published a standard work on Mints, for which most of the



material was collected in North Somerset. Unfortunately, some of the varieties he found have since disappeared from the localities given; but an interesting link with this **SOLE.** author is afforded by the discovery on Mendip, by the present writer in 1905, of the rare *Mentha citrata*, which was described and figured by SOLE (as *M. odorata*) from a specimen gathered by himself in North Wales. SOLE cultivated British plants in a botanical garden at Kensington, near the Avon; and planted out various species in neighbouring spots that he deemed suitable. *Lysimachia thyrsiflora* was thus placed by the river-side towards Twerton near Bath, where it was said to have flourished well for a time. The plant is suspected to have been introduced in like manner to South Wraxall bogs, not far away in Wilts, and there it still continues.\* Although there is no doubt that SOLE botanized a great deal about Bath, on the peat moors, and in other parts of the country, there seems to be little evidence of his work in the immediate neighbourhood of Bristol. He made certainly one valuable observation on Clifton Down, of *Carex humilis*, which had not been noticed before in Britain. Similarly, he introduced *C. digitata* to the British Flora from a locality near Bath. He is stated to have gathered a third rare sedge—*C. depauperata*—and probably in Somerset, but we have no particulars on that point. The list of rarer Somerset plants published in Collinson's History of the county was furnished by SOLE. He wrote also a MS. Flora of Somerset, dated 1782. This was in the possession of the late Mr. T. B. Flower. I have not been able to refer to it, but Mr. Thomas Clark in his *Catalogue of the Turf-Moor Plants of Somerset* stated that he had read it, and mentioned a few records that it contained. Quoting some half-dozen species that had been found by SOLE upon the moors, but which were unknown to him, Mr. Clark wrote:—"The MS. of SOLE contains several plants which have not been observed by me. SOLE was in the practice of paying annual visits to the moor, and it is not likely that so experienced a botanist was in error as to any of the plants which he has recorded." This confidence of Mr. Clark's was fully justified, for since his time at least five of the species in question have been rediscovered. But three others, equally important, viz., *Parnassia palustris*, *Limosella aquatica* and *Salicornia radicans*,\* still remain unknown to us. It is too probable that these are now extinct, for to-day there is in the district hardly

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\* See Note by T. B. Flower, F.L.S., in *Phytol.* iii, p. 580.

a bit of primitive bog or heath-land left untouched by the turf-cutters; many an ill-drained swamp has become pasture since SOLE looked into it; and the coast line also has been interfered with.

Some original letters of SOLE to Lambert in 1799 are preserved in the Nat. Hist. Museum at S. Kensington, and give some idea of his individuality. We cannot suppose him to have been a man of much culture. It is evident that he grew all his Mints in his garden at Bath.

MARIA EDGEWORTH came to Clifton and was residing at Princes Buildings in the year 1793. Writing to a cousin, Miss Ruxton, she says:—"My uncle has just been with us for **EDGEWORTH.** three weeks, and in that time filled five quires of paper with dried plants from the neighbouring rocks. He says there is at Clifton the richest harvest for botanists . . . There is a species of cistus which grows at St. Vincent's Rock which is not, I am told, to be found in any other part of England."\* A misleading bit of hear-say.

Even the humblest commentator can feel pleasure in writing a few words of appreciation on that splendid work generally known as SOWERBY'S *English Botany*.† This was published in thirty-six volumes, between the years 1790 and 1814; the descriptions, with three exceptions, being written by Sir James Edward Smith, founder of the Linnean Society, and the 2500 coloured plates drawn by JAMES SOWERBY and his eldest son J. de Carle Sowerby. In addition, four complete volumes of a Supplement were published between 1831 and 1865. These were written and illustrated by several botanists and artists of note. A second edition of the work, arranged on the Linnean system, in smaller compass and with condensed descriptions, was issued between 1832 and 1846. With this edition were incorporated such plates of the Supplement as had already been published. The third edition, by Dr. Boswell Syme, with most of the original plates and many new ones, the Cellular Cryptogams being omitted, and with descriptions most admirably rewritten by the editor, appeared from 1863 to 1872 in eleven volumes. A twelfth, on the Vascular Cryptogams, was completed by Mr. N. E. Brown in 1886. This last edition is the one we are now accustomed to refer to as "Sowerby," or "Syme's E.B."

\* Stanley Hutton: *Bristol and its Famous Associations*, 1907.

† The information here given is derived from "Notes on the Drawings for 'English Botany,'" by F. N. A. Garry, M.A., pub. in *Journ. Bot.* 1903-4; a most interesting contribution to our botanical literature.



The charming original drawings for *English Botany* are in the Botanical Department of the British Museum. There they may be compared with the corresponding plates of the first and third editions, a comparison which, as regards the colouring, is unfavourable to the figures of the later work. Although that much can be said in disparagement of Syme's beautiful book, happy are those who possess it rather than a recent re-issue (1901-2) in which many of the plates are vexatiously spoiled by crude mistaken tints laid on in a hurry. In nearly every instance the original drawings are annotated by the artist or by the writer of the description. "Throughout all their work, extended over so long a period, the artists showed no sign of weariness or of failing enthusiasm." And the same may surely be written of Sir J. E. Smith whose comments, from beginning to end, were unsparingly critical, and whose endeavours to ensure accuracy in delineation did not flag through all those years. A few of his notes to the artist were very outspoken. For example, on a sketch for *Scabiosa Columbaria*, where a flower had been drawn with five stamens, Smith wrote:—"The stamina are never more than four, though the corolla is 5-cleft. You draw 5 stamens, a very bad blunder, which has cost me two hours in boiling and examining specimens to set it right. Pray examine your specimens and write me." On another, for *Chenopodium hybridum*, is the following:—"Dots very irregular, and much like wrinkles. Leaves not enough heartshaped. It is unfortunate that for want of *looking at Fl. Brit.* you have drawn the very worst specimen, and not expressed the cordate-spreading leaves and spreading flower-stalks or dotted seed. I wish you would always think of this, which I urge so often." But not infrequently we find:—"This is exquisite," and those three words, from such a source, must have conveyed to the draughtsman a full sense of satisfaction. During the course of this undertaking, rare and local plants were sent to the editor or artist from many correspondents. From Bristol the earliest was "a rather too luxuriant specimen" of *Scilla autumnalis*, furnished by Dr. John Ford from St. Vincent's Rocks in the autumn of 1792, a moist season. Viscount Lewisham sent *Arabis hirsuta* from Clifton in 1794. On June 13th, 1797, Smith got *Vicia hybrida*, contributed by Mr. A. B. Lambert from Glastonbury Tor; and in 1799 *Sedum dasyphyllum* was figured from a specimen "shewn to us by Thomas Webb Dyer on the walls of Clifton near Bristol." In 1799 also there came "fresh specimens of *Carex digitata* from W. Clayfield . . . growing profusely among bushes under St. Vincent's Rocks

on the south side of the river." The course of the Avon just there is almost exactly north and south, so that one cannot feel quite sure that the Leigh bank was not intended. Very possibly it was. But at that date the Clifton Down thickets no doubt came down to the tow-path, and as the sedge still grows high up it may then perhaps have been plentiful towards the base of the rocks. Ten years went by before *C. humilis* was drawn, being gathered in April, 1809 by Mr. Edw. Forster on "St. Vincent's Rock by the footpath leading from Clifton to the Hot Wells in a very sunny spot." The plant is still there, opposite Sion Hill. In the same year a more remarkable sedge, long since extinct with us, was figured from specimens obtained from Lansdown, Bath. *C. Davalliana* was gathered by Mr. Groult and sent up by Mr. E. Forster, "the ripe fruit only being added from one of Mr. Davall's own." *Bromus madritensis* was furnished by Mr. Hemsted from the Downs. "Fresh wild specimens" of *Lamium maculatum* were had in April, 1813 from Mrs. Vaughan of Redland Court who gathered them from a bank in a lane hard by. But SOWERBY suspected the plant to be usually an outcast. For the Supplement a figure of *Petroselinum sativum* was made from a Clifton example in 1834. Mr. G. H. K. Thwaites sent up a specimen of his own discovery—*Epilobium lanceolatum*—from "Salterton," Bristol, a misreading, doubtless, for Stapleton, where he first noticed the plant in 1847. And Dr. H. O. Stephens contributed *Ulex Gallii* from Durdham Down in Oct. 1849, only a few months after the species had been described by M. Planchon. These notes are interesting, as they show how it came about that so large a number of illustrations in our great botanical classic were made from subjects obtained at Bristol.

JAMES SOWERBY, in company with Dawson Turner, a good botanist and large contributor to *English Botany*, made a tour through the West of England in 1799, and read a paper on their botanical results before the Linnean Society in October.\* Travelling, as they state, nearly a thousand miles in little more than a month, their leisure for botany could not have been considerable: the number of rare plants noticed is therefore very creditable. At Bristol they received kind attentions from Dr. Dyer and Mr. Wm. Clayfield who pointed out the more remarkable local plants, and most of them accordingly appear in the Catalogue. That list, however, contains other interesting and less known items, in the following order: e.g., "*Serapias latifolia*—St. Vincent's Rock near Bristol." This

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\* *Trans. Linn. Soc.* v. 1800.



is the Hudsonian name for *Epipactis latifolia*, not now known at Clifton on the Gloucester side of the Avon, although it occurs sparingly in Leigh Wood. *Centranthus ruber*—"sometimes with a white flower; on walls of Glastonbury Abbey," (labelled in Herb. Sowerby as from the Abbot's Kitchen). "*Leonurus Cardiac*—Waste ground near Bristol," is the earliest record for this species in our district. *Geranium lucidum*—"near Wells," is another first record. SOWERBY writes of *Vicia lutea* on Glastonbury Tor:—"We gathered this in great plenty, but saw no appearance of *V. hybrida*." Two years before, as has been mentioned, Mr. Lambert had found *V. hybrida* on the hill, and sent a specimen to Sir J. E. Smith. The entry of "*Lotus diffusus*—Marshes below Cooke's Folly near Bristol," doubtless referred to *Lotus tenuis* Waldst., known to grow at the same spot. Like all such errors this one occasioned a good deal of subsequent trouble, as it was copied into the *Flora Britannica* and other books up to and including Swete's *Flora Brist.*, although the latter author certainly scented a mistake. This is how *Lotus angustissimus*, for which *diffusus* was an old name, set up a claim to be a Gloucestershire plant in the old *Botanist's Guide* and Clifton Guide-books. In nearly every case the specimens collected by SOWERBY were used for illustrating the great work. The figure of *Tragopogon porrifolius* is from a plant gathered by him in a meadow below Sneyd Park, probably in June, 1799, and this stood as a first Bristol record for the species until Banks and Lightfoot's Journal came under notice.

Not very much can be told of those Bristol worthies who helped Sowerby and Smith. THOMAS WEBB DYER, M.D., F.L.S., a Tory and sometime President of the Dolphin Society, was  
**DYER.** Apothecary to the Royal Infirmary from 1789 to 1810, when he resigned. In 1811 he became a candidate for the Physicianship, and again in 1816, being beaten by the Whigs after close contests on both occasions. He practised in Park Street, where it is stated that he possessed "a beautiful Museum, consisting of superb specimens in each of the kingdoms of nature; . . . The stuffed birds are particularly splendid, and the insects and fishes in very high condition. The numerous specimens of minerals and organic remains are exceedingly fine, and his extensive library of natural history is, perhaps, unrivalled in splendour and value out of the Metropolis."\* Dr. DYER'S

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\* *The New Guide, or Picture of Bristol*, by the Rev. John Evans, ed. iv., 1828, p. 71.

herbarium has repeatedly been inquired for of late years, but cannot be traced. He helped Mr. E. Shiercliff, the writer of "The Bristol and Hotwell Guide, 1789," to compile for publication a more complete list of the rarer local plants than had been put together up to that time. Shiercliff himself was a fair botanist. He made an excellent coloured drawing of *Arabis stricta* to illustrate his Guide. I think no better figure of the plant has ever appeared. But it was an error to credit DYER with the discovery of that rarity, Newton and Ray having gathered it a century before. His personal records for the district are but few. They comprise, however, *Monotropa* in Leigh Woods; *Alopecurus bulbosus* in St. Philip's Marsh; *Briza minor* on St. Vincent's Rocks; and *Brachypodium pinnatum* on Clifton Down; all important plants although the *Briza*, of course, was accidental.

Of WILLIAM CLAYFIELD, of Clifton, I can only learn that he possessed "a very fine and interesting collection" of minerals.

The earlier editions of the Rev. John Evans' *Picture of Bristol* contain a list of plants copied from Shiercliff; but in the fourth

edition of 1828 this was replaced by "A list of  
**ROOTSEY.** 100 rare plants which are found in the environs of

Bristol, by S. Rootsey, F.L.S." This catalogue is drawn up alphabetically with numbers referring to the *English Botany* plates.\* Some of the items were taken from Hudson, Withering or Swayne, and a few, such as *Impatiens Noli-tangere* and *Reseda alba*, were casuals; but the majority seem to have resulted from personal explorations. Among them are first Bristol records for the following:—*Anagallis cærulea*, *Anchusa semper-virens*, *Arenaria tenuifolia*, *Campanula latifolia*, *Coronopus didyma*, *Dipsacus pilosus*, *Habenaria bifolia* (from Leigh Woods, and therefore doubtless *H. chlorantha*), *Lactuca virosa*, *Lathræa squamaria*, *Lathyrus Aphaca*, *Trigonella ornithopodioides*, *Nephrodium Oreopteris*, *Polygonum Bistorta*, *Polypodium Dryopteris*, *Rumex sanguineus*, and *Petroselinum segetum*. We get the first mention also of the strangely elusive *Pyrus pinnatifida* in Leigh Woods, whence it has been reported several times. Specimens are extant, but they lack the much-desired particulars of place and time. No one living seems to have met with the tree. Baptist Mills and the Boiling Well provided the list with several species which those localities are unlikely ever to yield again, so greatly have they been altered. At that time both *Veronica hybrida* and *V. spicata* were reckoned

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\* The list was copied verbatim in *Morgan's New Guide to Bristol*, 1851.



among the plants of St. Vincent's Rocks, and the idea was shared by other botanists of the day, as Swete explained. This SAMUEL ROOTSEY (1788-1855), of Essex birth, was a chemist in North Street, Bristol, in 1812. As many of the craft have done and are still doing, he seems to have developed the scientific side of his calling in preference to the commercial, and became a teacher and lecturer on botany at Bristol and elsewhere, with but poor results, financially. His name appears as botanical lecturer on the first prospectus (1832) of the Bristol Medical School. He was connected by marriage with the Bentalls of Halstead, Essex, who, in 1843, introduced the celebrated botanical drying paper, unfortunately no longer made, for it has never been equalled. Dr. Perrin of Temple Cloud, when a medical student, boarded with the Rootseys. He formed a herbarium and got a good many of his teacher's specimens. The remainder have disappeared. Swete owns help from ROOTSEY in the preparation of his book, but for some unknown reason several of the plants that had been published by the latter twenty years earlier find no place in the *Flora Bristolensis*. Only a little of ROOTSEY's scientific work is now available; but I have been directed to a noteworthy paper of his entitled "Observations upon some of the Medical Plants mentioned by Shakespeare" in *Trans. Med.-Bot. Society of London*, 1832-1833. The author was a Corresponding Member of the Society. In that paper he makes a number of interesting remarks on Bristol plant-names, some of which are quoted in the following pages.

All the botanical lists and book-records that had been published up to the end of the eighteenth century were abstracted and summarized by Turner and Dillwyn for their *Botanist's* **WATSON.** *Guide* of 1805, in which the less common plants of

Britain were referred to the respective counties where they had been said to grow. Thirty years later a *New Botanist's Guide* was compiled by HEWETT C. WATSON (1804-1881), an eminent naturalist and able writer on the geographical distribution of plants. He personally noted, for his topographical work, some Bristol plants on three occasions when he passed this way in 1831, 1833 and 1850. But for special localities in Somerset and Gloucester he relied mainly on Dr. Gapper of Bridgwater, and on Miss WORSLEY (afterwards Mrs. Russell) who then resided at Bristol. This lady had a very good knowledge of British plants, and is frequently mentioned in botanical works of that period as a contributor of specimens and localities. MR. WATSON, than whom a more acute judge of

character and capability could hardly be,—impatient to a degree of all bungling or conceit—wrote :—" My botanical correspondence with Mrs. Russell, and interchanges of specimens, **WORSLEY.** have been carried on through a long series of years, and on my side with ever-increasing satisfaction." The following species stand to her credit as early records for this district :—*Lepidium Smithii*, *Nasturtium sylvestre*, *Erysimum cheiranthoides*, *Hypericum dubium*, *Astragalus glycyphyllos*, *Fragaria elatior*, *Rosa micrantha*, *Sedum sexangulare*, *Lithospermum purpureo-cæruleum*, *Chenopodium urbicum*, *C. ficifolium*, *Eleocharis multicaulis*. In both the *Guides* alluded to the authors point out the difficulty that met them in assigning to their proper counties plants stated to grow " near Bristol," and beg indulgence for inaccuracies they found it impossible wholly to avoid. Indeed, confusion has often arisen through ignorance of local geography on the part of observers. St. Vincent's Rocks have been sometimes supposed to include the cliffs on the opposite side of the river, making it obviously difficult to say whether Gloucester or Somerset, or both counties, were intended. At the present time excellent people are to be met with who have fallen into the mistake of considering the whole rocky side of the river from Hotwells as far as Sneyd Park to come under the saintly name, and so plants have been reported from St. Vincent's Rocks when they actually occurred a mile lower down, on a different formation.

There were two other men of that generation who left abiding marks upon the botany of Bristol :—G. H. K. THWAITES, Ph.D., C.M.G., F.R.S. ; and HENRY OXLEY STEPHENS. THWAITES was

**THWAITES.** born in Bristol in 1811. He began life as an  
**STEPHENS.** accountant in this city, applying himself during the intervals of business to the study of Botany

and Entomology. His first botanical note, on the occurrence of *Asplenium lanceolatum* near Stapleton, appeared in the " Phytologist " for October, 1841. In the same year and in the same journal he noted the unchanged characters of *Anagallis cærulea* after five or six years' cultivation in his garden at Kingsdown Parade. Then, in 1843, came a paper for the Botanical Society of London on Bristol Mosses, enumerating 133 noteworthy species. The author had discovered *Grimmia orbicularis* at Clifton. At that time, too, he was supplying to the members of the Society good illustrative specimens of many Bristol plants. Afterwards, he wrote and published in the *Annals and Magazine of Natural History* a large number of papers on the lower cryptogams. These contain



descriptions of new genera and species of Diatomaceæ and Algæ, and show most careful and original work. About 1845 he marked for Mr. Watson a list of the flowering plants seen by him within ten miles of Bristol which is quoted for North Somerset and West Gloucester in *Topographical Botany*. In this list are noted several rare species, *Dianthus deltoides* for West Gloucester being one, which so far as my knowledge goes have never been rediscovered. Of *Calamagrostis lanceolata*, gathered by THWAITES in Filton Meads and not now to be found, a specimen in bad condition exists in the Flower Herbarium. In 1846 he was lecturing on botany in Bristol, and in 1847 he discovered in Frome Glen, Stapleton, *Epilobium lanceolatum* not before observed in Great Britain. His herbarium remained in the hands of a Clifton family for many years and seems to have been finally lost at an auction-sale in Victoria Square some time about 1880. In 1849 Dr. THWAITES was appointed Superintendent of the Royal Botanic Gardens, Peradeniya, Ceylon, where he is said to have "worked like a Hercules, contending with almost insurmountable difficulties." This position, and that of Director, he held for thirty years, and he never returned to England.

Dr. STEPHENS practised in Dighton Street and Old Market Street. He was an ardent botanist and microscopist all his life. In 1835 his "Catalogue of Plants in the Neighbourhood of Bristol" appeared in the "West of England Journal." A corresponding octavo pamphlet on Bristol Fungi is dated 1841; and he furnished the list of local plants contained in Chilcott's Clifton Guides of 1846 etc. Papers on the history, characters and progress of the fungoid potato-murrain were read by him in 1845, 1846 and 1847 before the Botanical Society of London. To the same Society STEPHENS communicated his discovery of *Allium sphaerocephalum* on July 31, 1847. Before that date the plant had been known only in Jersey and therefore could not be deemed geographically British. Clifton continues to be the only locality in Great Britain for this attractive flowering garlic. Too attractive it is, alas, to the increasing number of rambling and scrambling trippers and children who hunt the Downs, with a not unnatural desire for bunches of flowers. From their depredations the rarity is in some danger of extinction, for it has a tough stem and at every attempt to gather a head—up comes the bulb. But its case is not yet so sad as has been inaccurately reported.\* Thirty to forty heads can still be counted in August, and there is hope that some of the ground may be

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\* See a letter and leading article in *The Spectator*, July 27, 1907.

protected by a railing, though the difficulties in the way of adequately sheltering wild flowers in this manner are undeniable. Another rather remarkable find of DR. STEPHENS was that of *Epimedium alpinum* in Leigh Wood. This species is considered to have but slender claims to be ranked as a native. But it is stated to grow in wild rocky woods of the northern counties, spots similar in some respects to the Avon-side locality which is rocky and primitive enough, without doubt. And it is possible that the coppicing in rotation, which so greatly affects the development of many woodland species, may account for the apparent disappearance of this plant. One would be rash indeed to say that it no longer grows in the large tract where STEPHENS got it. Other good additions made to our lists by this botanist are *Lepidium Draba*, *Medicago minima*, *Sambucus Ebulus*, *Pyrola minor*, *P. media*, *Scirpus sylvaticus*, *Carex pilulifera*, *Avena fatua*, *Festuca elatior* and *F. Myuros*. *Sonchus palustris* has been struck out. STEPHENS was not alone in being deceived by a strong river-side *S. arvensis*. His herbarium was for some years in charge of an old friend—the late Dr. G. F. Burder, and is now the property of the Bristol Naturalists Society. The specimens are often without sufficient particulars of locality and date of collection, and some have been destroyed by insects. Among the losses, unhappily, is the only known example of *Pyrola media* from Dursley.

A Clifton naturalist whose name has not been so often quoted as his local work and merit would suggest was JAMES H. CUNDALL (1807–1883). His botanical memoranda are of **CUNDALL**. special interest because they were written with a welcome amount of detail, in contrast with the scanty information, on even important matters, too often provided in similar cases. We have, for example, observations on plants and plant-sites formerly existing in Cotham and Redland, that enable us to picture the attractions of Bristol's outskirts when the city covered less than half its present area,—all long since destroyed by extensions of building necessitated by growing populations. In those days the most pretentious thoroughfare in modern Clifton was known as Gallows-acre Lane; and on its hedgebanks grew Goldilocks, Archangels, the Moschatel and many another modest flower, more interesting and attractive to some of us than those that now grace the parterres of Pembroke Road. The very name of Dugar Wood (a favourite haunt of Mr. CUNDALL's) is unknown to the present generation, although there are persons living who, as children, have gathered Blue-bells



and Anemones among its trees, by the brook that ran towards Bishopston along the course of the Zetland Road. CUNDALL wrote a charming work called "The Every-Day Book of Natural History," 1866. This has recently been revised and reissued by Edward Step, F.L.S. In it the author offers for every day in the year a page or more of instructive matter relating to some bird, beast or wild-flower appropriate to the season, giving in delightful language a description of the habits, characters and haunts of each successive object. He hoped that the volume "might not prove unacceptable to that portion of the public who have neither time nor inclination for the scientific study of the various branches of Natural History, but who, nevertheless, cherish a deep abiding love for the works of Nature." Such a love this writer had to the full. It breathes in every paragraph of the book. To one who knew the place and the plant, the poetic delicacy of CUNDALL's article on the Buck-bean appeals with a peculiar and regretful charm. He speaks of a ramble through Leigh Wood "to the sought-for spot . . . shut in with ferny rocks and graceful trees . . . so lovely, and where so deep a quiet prevails, that each single drop that filters down the damp rock and falls, is heard distinctly." No longer do the elegant flowers "fringed with a lace that art of man can never imitate" rise from that woodland pool. The spring-head has been cut off; the place, drained and overspread with nettles and rank weeds, is not now what CUNDALL deemed it, one—

"About whose flowery banks  
The nimble-footed fairies dance their rounds,  
By the pale moonshine."

In addition to his professional and literary labours CUNDALL got together a collection of Bristol plants mounted in volumes. These bear witness to his industry and acquaintance with the flora of this neighbourhood. About 400 species are thus preserved. Some of the specimens possess a special value, and two are unique, viz: *Fumaria densiflora* from the Gloucester side of our district, and *Cephalanthera ensifolia* from the wooded slopes of Clifton Down. There are besides, our earliest examples of *Ophrys Trollee*—the "Wasp Orchis," and of *Carex Leersii*; with specimens of *Campanula latifolia* and *Blechnum* from Glen Frome.

A career almost exactly contemporaneous with the preceding was that of CHRISTOPHER EDMUND BROOME (1812–1886), an eminent mycologist, who lived for many years in this district.

In early life he was a companion and friend of Thwaites, with whom he made botanical excursions. When on a visit to the peat moor with Mr. Inman in 1885 he discovered **BROOME.** *Carex teretiuscula*, a rare sedge at that time unknown in Somerset; the two old and rather doubtful records for the county in *Fl. Som.* being badly in need of confirmation. His collection of Fungi, estimated to contain 40,000 specimens, is now in the British Museum.

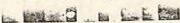
**THOMAS CLARK** (1793-1864), who has been mentioned in connection with Sole's botanizing in North Somerset, was born of a Quaker family, and lived at Bridgwater and **CLARK.** Wembdon. He was not only an industrious and painstaking botanist, but a most accurate one. The labels attached to his plants show a scrupulous care in describing the precise place and date of collection. He was a member of the Botanical Society of London, a contributor to the *Phytologist* (1851-3), and one of the authorities quoted for Somerset and Dorset in *Topographical Botany*. He was also the "obliging correspondent" of Sir W. J. Hooker with reference to the occurrence in Somerset of *Aconitum Napellus*. In 1856 CLARK published "A Catalogue of the Rarer Plants of the Turf-moors of Somerset" in the *Proceedings* of the Somerset Archæological and Natural History Society, of which he was a member. He had a most intimate and thorough knowledge of the moors at a period when their Flora was probably at its richest; he seems to have noted nearly all the interesting plants that were ever found there; and very few new discoveries remained for those who came after him upon the peat. Although he could not confirm all the 18th century records of Sole, several of them have since been found; and indeed, notwithstanding the advances of drainage and cultivation, there are few of the old Turf-moor plants which a careful search would not reveal to-day. Being of a modest and retiring nature, CLARK seems to have been content with quietly working by himself, corresponding only occasionally with the great botanists of his day; and he left it to his friend Collins to contribute the numerous records with which the latter is credited in *The New Botanist's Guide* (*Suppl.*). Shortly after CLARK's death his large herbarium was unfortunately scattered, and part of it cannot now be traced. I am glad to know, however, that the larger portion came into the hands of his great-nephew, who has inherited the botanical tastes and critical discernment of his relative, and to whom I am indebted for these particulars. Mr. Harold S. Thompson has helped Bristol botany



in several ways, distinguishing himself in particular by finding, in localities where the plants had been previously unknown, specimens of *Rubus saxatilis*, *Statice binervosa*, *Polygonum maritimum* and *Carex depauperata*. CLARK left good examples of many rarities collected in North Somerset; the dates showing in several instances that he was the first to notice them in the vice-county. Those of most interest to us are among the following:—*Ranunculus Lingua*, *R. hirsutus*, *Papaver Argemone*, *Sisymbrium Sophia*, *Thlaspi alpestre*, *Raphanus maritimus*, *Vicia lutea*, *V. hybrida*, *V. lathyroides*, *Lathyrus palustris*, *Cicuta virosa*, *Eryngium campestre*, *Vaccinium Oxycoccus*, *Veronica scutellata*, *Lamium hybridum*, *Utricularia minor*, *Rumex palustris*, *Sparganium minimum*, *Rhynchospora fusca*, and *Carex filiformis*.

The Rev. J. C. COLLINS of St. John's, Bridgwater, was a close friend and companion of Thos. Clark, with whom he often botanized. But he did not form a collection of dried plants: he merely marked in his copy of Hooker's *British Flora* those that he had observed; "the common ones with a X, and the rarer ones with the locality."\* COLLINS furnished Watson with a large number of Somerset records for the *New Botanist's Guide*, 1837. Some of these have been doubted by subsequent students of the county botany, as specimens were not submitted to Mr. Watson for verification, and a good many could not be rediscovered. Fortunately, Clark's herbarium contains numerous vouchers for COLLINS' statements, and as time went on further light was thrown upon the doubtful items; so that we now feel little reason for thinking COLLINS to have been mistaken in more than a few instances. It is worthy of note, moreover, that two or three questionable plants entered in the *Guide* on his authority are not in any way marked in his book; e.g., *Senecio squalidus* and *Juncus acutus*. At intervals, long after his death, the following have been refound near the spots for which he had recorded them:—*Brassica oleracea*, *Vaccinium Oxycoccus*, *Atriplex portulacoides*, *A. laciniata* and *Juncus maritimus*. But no hope can be entertained that the Sea-kale which grew near Burnham Church in those days will ever be seen again upon the Channel shore, nor the grand *Elymus*, so conspicuous that it could hardly exist unnoticed. We should feel not a little indebted to these old and half-forgotten botanists for letting us know that

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\* Information derived from the Rev. J. W. Collins, Holy Trinity Rectory, Ramsgate, a son of the Rev. J. C. Collins. 

such beautiful species once adorned the southern borders of our district.

No sketch of the progress of Bristol botany could be considered complete without a biographical notice of JOHN LEONARD KNAPP, F.L.S., F.S.A.; (1767–1845) a charming botanist and **KNAPP.** “traveller through the inexhaustible regions of Nature.”

Born in Buckinghamshire, he served for a while in the navy, and afterwards ashore as an officer of militia. He was in the habit of making long summer botanical excursions; and accompanied the celebrated Don in Scotland. In 1804 he published “*Gramina Britannica*, or Representations of the British Grasses on 119 coloured plates, with Descriptions”; the figures being executed by himself. Nearly the whole of this edition was destroyed by a fire at the printers’,—a sickening disaster—and the work was not re-issued until 1842. Between 1820 and 1830 when he was residing at Alveston, near Bristol, he wrote a series of articles under the title of “The Naturalist’s Diary.”\* These formed the germ of his most successful work, *The Journal of a Naturalist*, which was published in 1829, and went through three editions in his lifetime. In this book—a delightful companion to White’s “Selborne”—KNAPP provides us with invaluable descriptions of rural life and husbandry as existing at the time in his own parish and others along the limestone ridge from Almondsbury to Thornbury. His “brief and slight sketches; plain observations of nature, the produce often of intervals of leisure and shattered health”—to quote his own words—give most welcome glimpses of former agricultural conditions when large areas of teasels were grown in the district, and dyer’s broom was brought by cartloads to Bristol market and used for colouring woollen cloth. His accurate knowledge of grasses and of soils enabled him to improve the culture of his pasture lands; while his discourses on the mysterious preferences, dislikes, qualities and uses of many common wayside weeds; and his eloquent notes on birds, reptiles, insects, and all else that came and went around him, show how great was the happiness he derived from their intelligent study.

I possess a valued specimen of the rare *Astragalus danicus* collected on the Cotswolds by Dr. KNAPP in 1843, possibly within our northern limit, as the plant has been reported from Dursley; but the label does not say whether the locality was in East or West Gloucester. In commemoration of this author a genus of grasses was named

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\* See *Dict. Nat. Biog.* xxxi., p. 236.



*Knappia* by Smith. The house "Llanfoist" on Clifton Down was so called by a son after a former residence of the father at Abergavenny.

In the *Phytologist*, vol. I., p. 757, is "A list of some of the rarer plants noticed at Weston-super-Mare, during a day's visit to that place in the summer of 1843," by **GIBSON**. GEORGE STACEY GIBSON (1818-1883); an Essex banker, correspondent of Watson, and author of the *Flora of Essex*, 1862. He was a most accurate and painstaking botanist. As the result of Mr. GIBSON's investigations on that busy day at Weston and Uphill, we get a contribution of about forty special localities for good plants in this district. Among them we have the earliest records for *Reseda alba*, *Eryngium campestre*, *Chenopodium murale* and *Sclerochloa loliacea*. All these continue to grow in the neighbourhood at the present day. The *Eryngium* is one of the most interesting species in the Somerset flora, as it has but one or two other stations in Great Britain, and is steadily decreasing. This gives an instructive example of the difficulty in maintaining itself which one of the commonest weeds of Southern Europe finds on reaching its limit line to the North and West. In former days the plant certainly seems to have grown on Worlebury Hill in two places: one has been built upon, and at the other it is now (1907) on the verge of extinction from the trampling and scrambling that take place over the ground. Only root-leaves have appeared for years past. This is indeed a case where the town authorities would have done well to give protection by placing a railing round the spot.

Four years later there followed in Gibson's track an able and enthusiastic youth who, even as an undergraduate, was regarded as one of the rising hopes of the Cambridge school of botanists. **HORT**. FENTON J. A. HORT (1828-1892), M.A., D.D.; was not yet twenty when there appeared in the *Phytologist*, vol. II., pp. 1047-9, his "Notice of a few plants growing at Weston-super-Mare," and a "Note on *Centaurea nigra* var. *radiata* and *C. nigrescens*" which he had detected in Gloucestershire on the Cotswolds; both bearing date Nov. 5th, 1847. His contribution gives us first entries for the district of *Koniga* (*Alyssum*) *maritima*, *Cochlearia officinalis*, *Medicago falcata*, *Linaria repens*, *Nepeta Cataria*, *Iris fœtidissima* and *Phalaris canariensis*. In 1851 he published a new species of *Rubus* from the Wye Valley (*R. imbricatus* Hort), which was accepted by Prof. Babington—although he had not seen the plant growing—on account

of his "great confidence in the accuracy and judgment of the describer." This bramble is without doubt one of our most distinct and well-marked forms. Bristol botanists know it well in Glen Frome and elsewhere on the Pennant sandstone, and with us its characters never vary. The year 1852 seems to have seen the last of HORT's critical work in botany; which, it must be noted, formed but a subsidiary introduction to his life's work as a biblical student. He became in succession, Divinity Lecturer, Hulsean Professor of Divinity, Lady Margaret Professor, and a member of the Revision Committee of the *Authorized Version*.

A little book entitled "The Natural History of Portishead" was issued in 1852 by JOHN N. DUCK. This naturalist was, doubtless, a better geologist and entomologist than **DUCK**. botanist; for his list of the local plants contains some obvious errors. But although there are instances of apparently false diagnosis, and others of the plants mentioned are certainly not now to be met with, yet DUCK's observations furnish a number of original localities for interesting species. Such are *Lepidium Smithii* (as *hirtum*) not now indeed "common on the beach," but still found in good quantity a short distance to the westward; *Raphanus maritimus*, one of our rarest Cruciferae, that appears only at intervals; *Althaea officinalis*, not yet extirpated; *Lathyrus Nissolia* "in a lane leading to Clapton" where I have seen it; *Astragalus glycyphyllos*; *Inula Helenium*, now gone, but Portishead specimens are extant; *Milium effusum* and *Asplenium marinum*. DUCK's record for *Stachys germanica* in a "Fir Wood near Woodhill" may be accounted for by the known presence of *S. lanata*, which has escaped on to the hill in that vicinity.

At this period it is necessary to refer in succession to several botanists who were contemporaneous. We speak first of one who attained a greater age than the others; a **GRINDON**. genuine naturalist and plant-lover whose name was long and intimately associated with botanical literature. LEO H. GRINDON (1818-1904), a prolific writer, and author of many popular books on natural history, was born in Bristol, where his father was sometime Coroner. He did much to spread a knowledge of botany, and to make the subject attractive to the general reader: his writing, like his conversation, being interesting, suggestive and original. At an early age he removed to Manchester, where he spent the rest of a long life, and became widely known and esteemed. But, besides carrying out professional engagements as lecturer in this neighbourhood, he often



paid visits to relatives and connections in Bath and Bristol; and delighted in taking rambles with members of the Clifton Shakespeare Society and other friends, charming them with a poetic and fanciful commentary upon the flowers gathered on such occasions. There was nothing that he seemed to enjoy more than a day's outing in pursuit of his favourite study, preferably in a district remote from Manchester, where he could meet with things unknown at home. He, too, hated the "splitters," and made no pretence of having critical knowledge: still, when folk brought plants for him to name, as they constantly did, he could generally give an accurate determination. One or two of his most gleeful anecdotes recounted the instruction he had thus afforded to learned people—teachers of botany—who were puzzling over some common grass or flower. GRINDON made some interesting finds in our district, the most notable being the discovery of *Scheuchzeria palustris*, in July, 1842, at a curiously secluded spot on the Channel shore of North Somerset. He published in the old *Phytologist* a fair description of the place where he saw the plant; yet more than sixty years went by before it was sighted by another botanist, although many of us in searching for it had actually passed within a yard or two of the spot. I possess some fronds of *Asplenium marinum* gathered by GRINDON on that day. A few other things were recorded by him which are not yet satisfactorily accounted for, but the more important of them have been confirmed. We can well believe that he himself realized the ideal set before us in his *Country Rambles*. He wrote: "Life measures not by birthdays, but by capacity for noble enjoyments; and he who would be a Man must never forget to be a Boy. It avails nothing for a man to live sixty or seventy years, unless he carry along with him the freshness and cheerfulness of his youth; and nothing so powerfully contributes to keeping the heart green as simple and true love of country pleasures and country productions. This is the true old age, and that which we should set ourselves to attain. Our first desire may be to live as long as we can; but our chief wisdom, after the fear of God, is to cultivate those tastes which make youthful spirit last till birthdays come no more."

In turn comes a botanist whom I knew well, and whose notice is written, therefore, with some personal interest. THOMAS BRUGES FLOWER, F.R.C.S., who died at Bath in 1900. **FLOWER.** October 1899, aged 83, had been occupied with British botany for more than sixty years. Possessed of ample means, and a bachelor, he was never under the necessity of practising his profession or of limiting his devotion to a

favourite pursuit. During a long life he travelled all over the country to see things for himself and gather his own specimens, making friends with all the leading botanists of the time. Borrer, Watson, Syme, Babington and Clark were among his correspondents. He had joined them in botanical excursions on their own ground, and had in turn acted as conductor to good things discovered by himself. Thus he had acquired the widest general knowledge of plants, their habitats, and the people who studied them. But he never attempted to thread the mazes of our so-called critical genera—the brambles, willows and hawkweeds. The “splitters” were an abomination to MR. FLOWER.

The earliest specimens noticed in his herbarium are dated 1834. In 1839 he became a Fellow of the Linnean Society; and published a paper on Swansea plants in the *Magazine of Natural History*. In 1841 he wrote for the *Phytologist* a list of the more uncommon species observed at Bristol; and contributed from time to time a number of notes to the old series of that periodical. Berkshire, Kent and Wiltshire then received his botanical attentions. Of the latter—his native county—he began to prepare a Flora in 1848, and this was published in the *Wiltshire Archæological Magazine* during the years 1857–1874. In the meanwhile he had been one of the chief contributors to Swete's *Flora Bristolensis*, as is handsomely acknowledged by that author. An interleaved copy of the book, annotated by FLOWER, contains some corrections and explanations of doubtful records in the original work. Among his more important observations at Bristol are those relating to *Ranunculus circinatus* in Gloucestershire, *Corydalis claviculata*, *Montia*, *Saxifraga granulata*, *Vicia Orobus*, *Bupleurum rotundifolium*, *Bidens cernua*, *Cuscuta Epithymum*, *Fritillaria*, *Tulipa*, *Gagea* and *Gastroidium*. He visited the Steep Holm in 1850 and 1887; and must have examined the island very thoroughly, for he records nearly all the best plants that had ever been reported thence, including some—*Brassica oleracea*, *Lavatera arborea*, *Inula crithmoides*, *Statice binervosa* and *Euphorbia Lathyrus*—which were not observed by Mr. Murray and myself in 1891 at an earlier period of the year. With the second exploration his field-botany practically ended.

MR. FLOWER was well on in years when I came to Bristol—a stranger and a novice—and began to work up the Flora. Turning to him, as to a Father in British botany, for help and information, I soon found that he could tell me more about West of England plants than any other man I was likely to meet. My inquiries were always attended to with patience and courtesy. The old



gentleman was a great talker. Many a half-holiday I have spent in his parlour at Beaufort West listening to anecdotes and reminiscences of former friends, and of bygone jaunts in search of plants ; or in turning over the leaves of rare old books picked up from book-stalls at a ridiculous price in the days when such bargains were practicable. It made one happy, if a little envious, to hear the chuckles with which these lucky purchases were recalled. Such stories are likely to touch a weak spot in most of us. He remembered all the Bristol botanists of the Victorian era, and would describe their circumstances, family affairs and personal habits in minute and peculiar detail. One could feel no surprise at his being mentioned in print eventually as "a well-known botanical gossip." With all his loquacity he was singularly wary and cautious, evading with ease any kind of cross-examination. And so answers to special questions, as a rule, were only to be obtained by diplomacy. No encouragement was ever given to those who approached without a full measure of deference and respect. A botanical author, on one occasion, anxious for copy and eager to pump him, signally failed to get anything out of MR. FLOWER. Punctilious, precise and extremely neat himself, he looked askance at the visitor's negligent attire, and bristled at his brusque address. I had an account of that interview from each party, and understood why the desired notes and MS. in MR. FLOWER's pigeon-holes would not yet see the light. There was a splendid British herbarium, too, upstairs, which I much wanted to inspect. But I found always some hindrance in the way, some reason why, just then, one could not be admitted to the room ; and until after the owner's death I succeeded merely in getting a few packets brought down as a rare favour. I could never understand that reluctance, for the collection is remarkably fine and complete—one indeed to be proud of. MR. FLOWER's own specimens, and they form the large majority, were all extremely well chosen, and preserved in the best possible manner. He had, however, no wish to show them. Localities for rare plants were communicated and described by my old friend in the oddest fashion,—with great clearness and unreserve as it seemed—and yet when one went to find the place it turned out that something was amiss. Perhaps the name of a village had been misunderstood, or a wrong road unfortunately followed, and one knew that to go back and ask for more instruction would only provoke a laugh of which the like was never known, either for quality or volume ! I doubt if the existence of any rarity was ever jeopardized by MR. FLOWER's directions to others.

A rather pathetic figure was this aged lonely veteran, the last

survivor of that old school of botanists between whom and the present race so great a gap has widened. All his early companions had gone; he had no near relative to show an interest in his welfare: with two old servants he lived in comparative isolation. Not that he needed sympathy if he aroused it. For his mind was full of satisfaction with a life that had been thoroughly enjoyed, and from which it seemed that no dregs of bitterness remained. I have touched lightly on his foibles, but with no intention other than to preserve the memory of a shrewd, acute and able botanist with whom my converse was always pleasurable.

The distinguished career of the late Professor of Botany in the University of Cambridge, CHARLES CARDALE BABINGTON, M.A., F.R.S., etc. (1808–1895) may be said to have  
**BABINGTON.** begun with his study of British plants whilst a school-boy at Bath. As a day-scholar he used his liberty to make a close acquaintance with the neighbourhood of the city, and to collect plants and insects. On re-visiting Bath in 1831 he set himself to complete a list of the local flora. He writes: "I worked hard all the summer and finished the manuscript on the 15th October, having had the loan of Dr. H. Gibbes's *Flora Bathon.* and assistance from Mr. E. Simms and Dr. J. F. Davis." His *Flora Bathoniensis* was published in 1834; it contains a few critical notes and references to continental floras, which indicate the lines of the author's future work; and describes *Euphorbia pilosa* (called *epithymoides*) as a British plant. A small *Supplement* was added in 1839, bringing up the number of species treated in the work to about 760. From that time BABINGTON turned definitely to botanical work. He had spent a year or so in the Channel Islands, and embodied his observations in the *Primitivæ Floræ Sarnicæ* published in 1839. "A much more important work, however, was already in progress. In his diary for 1835 is the entry: 'May 11. Commenced my Manual of British Botany,' and with this his time was largely occupied until 1843, when the last proof of the book was corrected: the preface is dated May 1st, 1843. Of this work it is not too much to say that it revolutionized the study of British plants, and gave an impetus to thought and work among British botanists to a degree unequalled by any publication of the century."\* At intervals of a few years no fewer than eight editions of the *Manual* were issued during the author's lifetime, and a ninth after his death. Besides a number of minor

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\* *Journ. Bot.* 1895, p. 258.



papers, BABINGTON wrote also a *Flora of Cambridgeshire*—an excellent book—and *The British Rubi*, the latter giving the results of his long-pursued study of this fascinating but troublesome group. This last work again pushed on the investigation of difficult genera, arousing zeal which has not yet expended itself. BABINGTON was botanizing at Bristol with Flower in July, 1839. They then searched in vain below Shirehampton for the *Trifolium resupinatum* that had been recorded thence by Mr. Drummond. It was in the Shirehampton ditches, later, that BABINGTON detected *Ranunculus Baudotii*, and added this distinct plant to the British Flora. He speaks also of gathering *R. confusus* at Weston-super-Mare. By that time he had capably elucidated the Batrachian Ranunculi, and had controverted the opinion prevalent in England that the group formed but one species. *Vicia gracilis*, too, was first noticed in Britain by BABINGTON—at Barrow Hill near Englishcombe—and was originally published in *Fl. Bathon. Suppl.* Another important local discovery was of that singularly elusive plant *Polygonum dumetorum*, between Keynsham and Brislington. Of this I have a specimen under the finder's own label, dated Sept. 1836. We have no other record of the plant's occurrence in the county of Somerset.

PROF. BABINGTON was not only the greatest systematic botanist of his generation, but, it is feared, was the last systematist to occupy so high a position in university education. During the latter half of his life enormous progress had been made in the study of vegetable anatomy, histology, and physiology: the proportionate value of field-botany correspondingly diminishing in the minds of men. The "garret-botanists," as they have been most irreverently termed, now hold sway and monopolize botanical teaching in educational centres. It will have to be recognized, however, in planning a course of Botany, that a mean must be sought between the older methods which gave too small an insight into the principles of plant life and the problems of living matter, and that newer Nature Study which, seeing little save through a microscope, has no breadth of view. Surely he will be a pitiful student, after all, who although readily able to dissect and separate every sort of tissue and tell its function, yet when confronted with the living plant is quite uncertain whether it be a pig-nut or a parsnep, a cudweed or a chamomile; has little idea if it be British or foreign; and still less if it be likely to have any commercial or economic value. And how can he, unless he seek the growing herb in its own home, and find some joy in a wider field of botanical research than the laboratory affords him?

It may be fitting to mention here the late Rev. W. W. Newbould's copy of the Bath Flora and its Supplement which contains numerous notes (written in 1884) of observations made by Mr. J. G. Baker, F.R.S. when visiting Bath about that time; and also notes from a Lecture on the Bath Flora which was delivered Dec. 5th, 1866 by the Rev. L. Jenyns, M.A., F.L.S., and published in the *Proceedings of the Bath Nat. Hist. and Antiquarian Field Club*, vol. I. pp. 25-63. These notes have been incorporated in the body of this book. The choice herbarium formed by Mr. Jenyns (afterwards Blomefield) is preserved in the Bath Institution. It does not contain very many local specimens. But in it are our earliest examples of *Wahlenbergia hederacea* (peat moor, 1855), and of *Caucalis latifolia* (wheatfield, Bitton, 1870). The latter species shows curious persistence as a weed of cultivation, for it was reported as growing in cornfields about Bath in the year 1633.

A teacher of another type now deserves mention. GUSTAVUS A. O. ST. BRODY, M.A., Ph.D. (1828-1901) was born in France, but spent the chief part of his life in this country. **ST. BRODY.** as a teacher of science and languages, with field-botany for recreation. In 1856, when quite a young man, he published a small *Flora of Weston-super-Mare* in connection with the botanical lecture-classes he held in that town. The little book contained many interesting, but often doubtful, entries. Some statements made in it were so obviously hasty and questionable that, in the absence of voucher specimens, it seemed hardly advisable to give credence to the author's records for anything out of the common. But latterly there have appeared reasons for modifying that estimate of ST. BRODY's work. Several of his unlikely reported discoveries in Somerset, such as that of *Antennaria dioica*, *Onopordum* and *Atriplex laciniata*, have been confirmed; and the collection of Gloucestershire plants that he formed ten or twelve years afterwards shows his quality in another light altogether. This collection, which was entirely limited to the county flora, and almost wholly obtained by himself, contains nearly all the good plants of that rich Cotswold district about Stroud, Painswick and Dursley; as well as those of Clifton, the Wye bank, and the Forest of Dean; all excellently chosen and preserved. Accuracy, care and neatness are apparent throughout. Many tickets in the difficult genera carry the handwriting of experts to whom the doubtful specimens had been referred. In particular, Mr. J. G. Baker, of Kew, had been consulted on the Mints and Roses. At that time ST. BRODY held the post of French



Master at the Crypt Grammar School, Gloucester. In a "Report of progress towards the completion of the Flora of Gloucestershire, communicated to the Annual Meeting of the Cotteswold Naturalists Field Club, April 2nd, 1878, by G. S. Boulger, F.L.S., F.G.S." ; it is stated that prior to that date Mr. Harker had made a thorough examination of "this grand collection [of St. Brody's] comprising 1036 species and 105 varieties, which was meant to be the basis of a County Flora, but the plan was abandoned, as was also a Flora of Clifton, commenced by Mr. M. J. Barrington-Ward." I am not aware that any notes made by Mr. Harker during his examination were ever published ; or indeed that any further progress was made with the projected County Flora until the last few years. In 1870 or thereabout these plants had been sold to the city authorities, and were placed in the old School of Art. At present they are housed at the Technical Schools and Museum, and form a very valuable asset in Gloucestershire botany ; for, as I shall show presently, some of the specimens are unique and could not be replaced. DR. ST. BRODY must have enjoyed a good deal of leisure in the sixties. He came down into the Bristol district along the Severn shore at the Passages, on that little bit of seaboard which confers upon Gloucestershire some semblance of a maritime county, and gathered there a number of good plants that seem to have escaped notice by Thwaites and other Bristol botanists, although they could have reached the ground far more easily than ST. BRODY could from Gloucester. His most remarkable finds were *Vicia lathyroides*, *Salsola Kali*, *Polygonum Raii* (as *maritimum*), *Sparganium natans* and *Phleum arenarium*. These five had never been suspected to grow in Gloucestershire at any time ; while *Obione portulacoides* at Shirehampton, *Eryngium maritimum* and *Juncus maritimus* on the Severn shore are believed to be now extinct in the county. Mr. J. H. Burkhill, in his sketch of the Flora of Gloucestershire (1893), points out that these maritime species fail to enter the county ; but he, of course, like the rest of us, was ignorant of the vouchers that then lay hidden at Gloucester. ST. BRODY had anticipated my discovery of *Galium erectum* by nearly forty years. He got it on the same ground, near Dursley, in June, 1864. Other uncommon plants collected about Dursley at that period were *Scleranthus annuus*, *Fragaria elatior*, and *Valerianella dentata* var. *mixta*. Near Berkeley were gathered *Cratægus oxyacanthoides* and *Acorus Calamus* ; and at Over *Heliosciadium inundatum* with *Dipsacus Fullonum* (not then gone out of cultivation, and more often found as an escape than it is now). *Arctium pubens* may still grow

near New Passage, but *Chenopodium hybridum* has not been met with at Crew's Hole since ST. BRODY gathered it. Among his plants is a specimen of *Salvia pratensis*, the Meadow Clary, from Wyck Cliffs, dated 1849. This forms a curious confirmation of, or coincidence with, Swayne's record for the plant at that place nearly a century earlier. Another remarkable feature of this herbarium, not easy to explain, is that it contains specimens (without habitat or date) of those species which have been reported to grow in Gloucestershire either in error or as accidents; such as *Lathyrus latifolius*, *Veronica triphyllos* and *Lagurus*. One can only guess that these were introduced to show an inquirer what those plants were really like in case he thought he had found one of them in the county, and wished to verify his find. In 1887, when residing with a Scotch family in Ayrshire, DR. ST. BRODY discovered a new moon-wort—*Botrychium matricariæfolium*. His specimen has the interest of being the only known British example of the species. I know nothing of the MS. Flora of Somerset which this botanist is said to have undertaken, nor can I hear of any collection of Somerset plants which he might have formed when living at Weston. So nomadic a person, however, would not be very likely to burden himself with baggage of that kind. He died at Wallingford, Berks, in sadly reduced circumstances—the fate of many old teachers who have passed their lives in improving the mental equipment of others, without finding it possible to make provision for the material needs of their own closing years.

There comes next in historical sequence the work of EDWARD HORACE SWETE, M.D., M.R.C.S.; sometime Lecturer on Botany at the Bristol Medical School\*; who put together the **SWETE.** first comprehensive account of the plants near this city. His *Flora Bristolensis* appeared in 1854, following at no long interval upon Babington's botanical account of Bath. It is a volume of much interest to the local botanist. SWETE spared neither time nor pains in the compilation of his book. All the accessories were carefully worked out. He wrote excellent introductory matter in which the physical features, climate and other preliminaries are clearly stated; the distribution of the plants according to geological formation is discussed; and the work closes with an appendix containing

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\* "A search through the minute-books of the School has failed to discover any entry made about him." *L. M. Griffiths, M.R.C.S.*; in *The Bristol Med.-Chirurg. Journal*, Sept. 1907.



directions for collecting, drying and preserving specimens. But bibliography is wanting, and scarcely any references are made to observations of the older botanists who did so much in elucidation of the Bristol Flora. About 810 species are mentioned as occurring within a circle of ten miles in diameter; Bristol Exchange being the centre. Several of the included plants, however, had but a shadowy claim to admission, namely the Steep Holm Pæony, Tree-mallow and Leek; *Thlaspi perfoliatum*, *Turritis glabra*, *Lathyrus latifolius*, *Vaccinium*, *Vitis-Idæa*, *Veronica triphyllus* and one or two others. Still, there are very few errors. Mr. Flower explained to me that the *Ænanthe pimpinelloides* mentioned was really *Æ. Lachenalii*. At that time the two species were often confounded. It has turned out since that the true plant was actually growing upon SWETE's five-mile limit in another direction, but was not detected until many years after he wrote. Numerous first records are inscribed upon SWETE's pages. He affixed an asterisk to the plants he had himself seen, and from this indication it appears that he discovered, or viewed *in situ*, *Ranunculus hirsutus*, *Saponaria officinalis*, *Geranium phæum*, *G. pusillum*, *Prunus Padus*, *Geum rivale*, *Pyrus pinnatifida*, *Lactuca virosa*, *Campanula patula* in Glen Frome, *Orchis ustulata* at Cook's Folly, *Juncus maritimus* in Shirehampton Marshes, and *Carex teretiuscula* at the Boiling Well. In the absence of specimens it may be permissible to doubt the authenticity of the three latter entries, neither of which has been confirmed. The author was fortunate in enlisting the services of an able band of Bristol botanists, the amount of whose help is manifest. Thwaites and Stephens did the Willows, and are answerable for most of the Cyperaceæ as well as for some notable petaloid species. Mr. Flower's share in the work has already been alluded to. But besides those coadjutors there were two ladies whom it will be well to mention here as affording assistance to SWETE.

We turn first to Miss MARTHA MARIA ATWOOD of Clifton, who was cited by Watson as an authority on the plants of North Somerset, and of five or six Welsh counties. She **ATWOOD.** was a prominent muscologist. Many of Swete's grasses were vouched for by this botanist, and we note her critical faculty too in the determination of *Rubus affinis*, *R. corylifolius*, *Pyrus latifolia* (as *intermedia*), *Carduus Gibsoni*, *Hieracium maculatum*, *H. boreale*, *Stachys ambigua* and *Euphrasia nemorosa*. It is noticeable that she remarked plants in various places where other folk had missed them; for instance, *Melampyrum pratense* by Clifton Turnpike, or as we should now

say, near Proctor's Fountain; *Allium oleraceum* in Ashton Fields; and *Carex digitata* in Leigh Woods; all which are still growing where she found them. But unhappily we have now to go for Marsh Cinque-foil many miles farther afield than the spots whence Miss ATWOOD recorded it sixty years ago. Her opinion that both *Veronica hybrida* and *V. spicata* grew on St. Vincent's Rocks proved to be ill-founded; and I hope it may not be ungracious to add that she did not escape the common error of confusing *Gentiana Amarella* with *G. campestris*. The other excellent lady botanist

whose observations were esteemed was Miss F. S. **POWELL**. POWELL, of Henbury. This lady contributed many interesting records from her own and adjacent parishes, including such plants as *Draba muralis*, *Specularia hybrida*, *Linaria spuria*, *Chenopodium polyspermum* and *Botrychium Lunaria*. Her puzzling broom-rape from a bean-field at Charlton, G. was considered at the time to be of accidental occurrence; and later examination of the specimen by an expert has shown it to be, in fact, an alien—*O. speciosa*—that infests leguminous crops in southern Europe. Miss POWELL formed a collection with exquisite neatness; mounting her specimens without any adhesive material. They were fastened to cartridge paper by strips passed in and out of tiny slits cut with the utmost dexterity. A large number of her plants have been incorporated with the Herbert Thomas Herbarium in the Bristol Museum.

Other names that occur less frequently than the foregoing in SWETE's book are those of Drs. C. Fox and Rogers; and Messrs. Prichard, Etheridge, Ellis and Foster. But little is known of their botanical work. Some Carices reported by the last-named gentleman (*C. curta* in particular), are not known to us in the localities given.

It has not escaped remark that Dr. SWETE's pursuit of botany apparently ended with the publication of his book and his early departure from Bristol. He attained some eminence in his profession, taking a prominent position among the promoters of hygiene, sanitation, and hospital accommodation in rural districts; and lived to a great age.

Since these notes took shape another writer on West of England botany has passed away in the person of RICHARD PAGET MURRAY, M.A., F.L.S. (1842–1908). He graduated at Cambridge, being first in the First Class Natural Science Tripos of 1867. Entering the Church, he had for some years sole charge of Baltonsborough, Somerset; and from



1883 was Vicar of Shapwick, Dorset. He botanized a good deal in Portugal and also worked systematically in the Canary Islands, at one time hoping to publish a connected account of the Canarian flora as the result of his labour. On these journeys he detected and described several new species, but his main intention was not carried beyond the preparation of a mass of critical notes and material of undoubted value.

The spirit of investigation that led MR. MURRAY to traverse so wide a field abroad well qualified him to undertake the task of a County Flora at home. In 1896, after long residence in the locality, he told the story of Somerset botany, as it was then understood, in a well-planned and clearly printed volume that met with a good reception. The *Flora of Somerset* was an admirable work, singularly free from extraneous matter, at once simple, conscientious and authoritative. Unluckily for the author, with whom the brambles were especial favourites, he wrote at a period when that genus was in a state of fusion. Could he have waited a dozen years or so, many of the changes and corrections that appear in his Appendices would have been avoided. MR. MURRAY's kind estimate of Mr. David Fry's explorations, and of my own, induced him to concentrate his attention on the south and west of the county, and to depend largely on our records for the portion which adjoins Bristol. I have a pleasant remembrance of botanical excursions in his company, particularly of a glorious day on Steep Holm in June, 1891. Specimens of several special rarities were then obtained, and notes taken on the entire vegetation of the island. We have lost an agreeable personality, one whose death leaves a very perceptible gap in the array of British systematists.

Of late, too, since this sketch was taken in hand, we have been lamenting the removal of EDWIN WHEELER (1831-1909); ornithologist, botanist and artist, an enthusiastic **WHEELER.** naturalist of exceptional powers, whose kindly, modest and unselfish nature made him universally respected. Every moment of time that he could spare from business was habitually devoted to some natural history hobby, and the amount of work he accomplished was astonishing. Some of the more valuable collections with which his house overflowed were given to the public during his life-time, his desire being that others might take pleasure in and profit by the series of illustrations he had delighted to prepare. MR. WHEELER was decidedly gifted as a water-colour artist. He revelled in the varied beauty of birds, fishes and flowers, and never wearied of portraying them. Nearly

3,000 drawings of British Fungi were presented by him to the British Museum in 1895; the Report of the Department of Botany for that year stating that "The drawings are of particular importance as accurate records of the colour characters of the larger Fungi, which are so difficult to preserve suitably in a herbarium." Sketches of scenery or little albums of mounted mosses, collected at the time, were always given as mementos to the friends with whom he took a holiday. By such means and in other quiet ways he busied himself in trying to bring a larger number of persons within the attraction of his pursuits. The story of MR. WHEELER's life, should it be written in detail by some competent friend, would certainly prove to be deeply interesting and suggestive.

Beyond scattered notes in the journals, nothing further, that I know of, has been published concerning the botany of our district by those whose life's work has ended. But I cannot close without mentioning the names of three Bristolians of distinction, men to whose influence upon the author the researches of which this book is the outcome are mainly due. One's thoughts often stray back to those extended summer rambles in the eighties that were organized and conducted by PROF. ADOLPH LEIPNER and DR. G. F. BURDER. They were attended by a swarm of young people infected by the enthusiasm of their leaders and attracted by the geniality, kindness and sympathy for which they were remarkable. Precisely the same attributes were shared by MR. W. W. STODDART, who found time amid the press of his analytical and geological work to write articles on the medicinal plants of the neighbourhood, and to form a collection. Were he ever so busy, the task of the moment was always cheerfully put aside in the interest of a visitor who wished to consult him upon any matter that lay within the bounds of his wide knowledge. With these friends I enjoyed many of the delightful experiences that fall to the lot of a field-botanist wherever he may bend his steps. Much more might be written of them, but it is unnecessary to dilate here upon their high attainments in scientific subjects, or to enumerate the benefits they conferred upon their brother naturalists. For their memory is still green and held in honour by all who were fortunate enough to know them; and those who were not, should they be desirous of learning more, can turn to other sources that are readily accessible.

It may be considered, possibly, that some of the foregoing passages are irrelevant and beside the mark. They may serve in some degree, however, to relieve the monotony of a dull tale. And as regards



the respective claims of the bygone botanists whose investigations are here recorded in chronological order, it may be said that it seemed better to give credit to all those who had, even to a small extent only, helped on our knowledge of local plants, rather than to omit any whose title to distinctive mention was not conspicuous.

If there be any lesson to learn, or advantage to gain, from studying such doings of men of science as are here related, it must be the same that is taught or conferred by the example of other men who have left a mark upon the world ; namely, that we should emulate their diligence, and that the desire to rank with them in good repute should be stimulated and strengthened. In any case it is surely fitting that we should sometimes pause and turn aside from the occupations of to-day, thankfully to remember and acknowledge what our predecessors have done for us.

## EXPLANATORY NOTES ON NOMENCLATURE, ETC.

The sequence followed in this arrangement of the Flowering Plants, Ferns, and Fern-Allies of the Bristol Coal Fields, and the nomenclature of the species, are those adopted in the ninth edition of Babington's *Manual of British Botany* edited by Messrs. James and Henry Groves. In those instances where modern rules of priority in botanical nomenclature have introduced unfamiliar generic or specific names, the older and better-known names are given as synonyms, printed in italics.

It may be useful here to interpolate a word of explanation respecting the binomial system. The name of a genus is a substantive derived from the Latin or Greek language. The specific name is, in general, purely adjectival, and thus follows the rules that govern the relations of adjectives with substantives. It is when the student meets with such apparent violations of agreement as *Aconitum Napellus*, *Delphinium Consolida*, *Lepidium Draba*, that he is apt to conclude that the rules of grammar may be set at naught in botanical Latin. But his conclusion will be wrong. Specific names formed from old generic names (as in the instances given), from nouns, or from vernacular names, rightly retain their endings and their initial capitals. There is nothing wrong, either, in such combinations as *Quercus pedunculata* and *Populus tremula*, for Latin names of trees ending in *us* are feminine. Specific names are often descriptive, as *Lepidium latifolium*, *Conium maculatum*, *Colchicum autumnale*; but it must be understood that this is by no means invariable.

After the scientific name of each species there follows an English plant-name, in italics. It is hardly necessary to say that a large number of these are book-names not in popular use, and that very few indeed are peculiar to the district. The recognition of coined English names for plants is frequently condemned as an absurdity; and doubtless they are of no value to the scholarly botanist who uses easily and spontaneously the Latin names of his gatherings. This book, however, has not been written solely for people of classical attainments, to whom the long, uncouth-looking names with which many of our plants are burdened have an expressive



meaning. There can be no doubt that many plant lovers, unlearned in Latin and Greek, ladies in particular, are deterred at the outset from attempting a closer study of systematic botany by the language obstacle. They find themselves confronted by portentous foreign names which they are wholly unable to translate and cannot even pronounce; and are thus hindered in acquiring knowledge of things they could not converse upon were it not for appellations provided in their own tongue. If these persons find it far easier to talk about and think of their wild flowers as "Perfidious Pepperworts" or "Trilobed Dragon's Snouts" than to wrestle with the *sesquipedalia verba* of our manuals and catalogues, and are thus helped on their way as students, surely book-names will be doing good rather than harm and their use may be tolerated.

Consecutive numbers have been prefixed to all those species, whether indigenous or otherwise, which seem to hold a permanent position in the district, and in the opinion of the writer are likely to be always present. Aliens and Casuals, not yet established, and with little prospect of permanence, are regarded as fugitive visitors and have not been numbered. Their records are printed in smaller type and are enclosed in square brackets. The three species that are indubitably extinct are not numbered.

In a fresh paragraph comes the grade of the plant as Native, Colonist etc., followed by its customary habitat, and an estimate of its frequency in the district under terms graduated from "very common" to "very rare." The word "frequent" has been used here and there, and is to be taken as equivalent to "rather common." These details are succeeded by the time of flowering as observed locally. Then are given specific localities in the two divisions: first those in Gloucestershire headed by the letter "G.," and secondly those in Somerset under "S.," unless the species be so abundant and so widely distributed as to render such particulars unnecessary. For obvious reasons the localities of rare plants are described in less detail than those of more abundant species. It is intended that the situation of a rarity should be only vaguely defined.

The expressions "waste places" and "waste ground" have been looked on as indicating spots disturbed by man's operations, and as implying the presence of rubbish in some form: certainly as not including commons, sea-shores and ground merely left uncultivated. And the term "dune," used in describing plant localities upon the coast, signifies always a natural sand-hill and has not the wider meaning attached to the word by some ecologists.

In arrangement, precedence is given to the localities nearest to

the city of Bristol: then in order of distance (without aiming at precision) are placed those further afield, until the lists end at points near the extremities of the respective divisions.

The stations in which the species have been observed to grow are given either on the authority of persons whose names are appended in italics, or on that of the author. He holds himself responsible for every station not followed by a reference. No statement in the least degree doubtful has been accepted without scrutiny and no trouble has been spared to ensure accuracy throughout the work. In most instances the plant has been seen growing in the locality indicated. This personal inspection is signified in the more important cases by adding a note of exclamation (!) and the date of the visit. On very many occasions a day's excursion has been made to test the value of a report, or to investigate the conditions under which a plant has been found in some outlying parish. Considerable pains, too, have been taken to ascertain the earliest record for interesting local species, but it is quite possible that some of these can be antedated on subsequent research.

The named varieties of plants have been treated in the same way as the plants themselves as regards their distribution, etc. The author has felt unable to adopt any intermediate rank between *species* and *variety*, but he is conscious that not all the plants to which numbers have been prefixed are on a par either in systematic value or in their stated grade of citizenship.

Lastly, remarks are sometimes added respecting the plant as a Bristol species; or particulars connected with it which the writer has thought may be useful or interesting to the average reader. He has included in this compilation every noteworthy fact within his knowledge of the botany of the district.



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 — *Bristolensis*.—See Swete.  
 — *Britannica*.—See Smith.  
 — *of Cambridgeshire*.—See Babington.  
 — *of Dorset*.—See Mansel-Pleydell.  
 — *of Glamorganshire*.—See Riddelsdell.  
 — *of Guernsey*.—See Marquand.  
 — *of Hampshire*.—See Townsend.  
 — *of Herefordshire*.—See Purchas and Ley.  
 — *of Kent*.—See Hanbury and Marshall.  
 — *Londinensis*.—See Curtis.  
 — *of Middlesex*.—See Trimen and Dyer.  
 — *of Oxfordshire*.—See Druce.  
 — *of Plymouth*.—See Briggs.  
 — *der Schweiz*.—See Gremli.  
 — *of Shropshire*.—See Leighton.  
 — *Sicula*.—See Gussone.  
 — *of Somerset*.—See Murray.  
 — *of Warwickshire*.—See Bagnall.  
 — *of Weston*.—See St. Brody.  
 — *of Wilts*.—See Preston.  
 — *of Worcestershire*.—See Amphlett and Rea.  
 — *of North Yorkshire*.—See Baker.  
 — *of North-West Yorkshire*.—See Lees.  
 — *Vectensis*.—See Bromfield.  
*Flore de France*.—See Grenier et Godron.  
 — — — See Rouy et Foucaud.  
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## HERBARIA EXAMINED AND QUOTED.

*Herb. Bristol Nat. Soc.*

A small collection, of little importance.

*Herb. Brit. Mus.*

The British Herbarium in the Nat. Hist. Museum, Cromwell Road. Notes extracted and furnished to the author by the Rev. H. J. Riddelsdell.

*Herb. Clark.*

Formed by the late Thomas Clark, of Bridgwater. Contains a fine series of the peat moor plants of North Somerset. Consulted through his grand-nephew, Mr. H. S. Thompson.

*Herb. Cundall.*

A small collection, arranged in volumes by the late Mr. J. H. Cundall. Now in the possession of the Misses Cundall.

*Herb. Dillenius.*

Quoted from an Account of the Dillenian Collections in the Herbarium of the University of Oxford, by Geo. Claridge Druce, M.A.

*Herb. Dunn.*

A collection of British Plants made by S. T. Dunn, B.A. ; F.L.S. ; and presented to Mr. Cedric Bucknall.

*Herb. Flower.*

The excellent Herbarium formed by the late Thomas Bruges Flower, F.R.C.S. ; F.L.S. The earliest specimens are dated 1834. Now in the possession of Dr. Harper, Batheaston.

*Herb. Jenyns.*

Collected by the late Rev. L. Jenyns Blomefield. Mounted in volumes, and preserved in the Bath Literary and Philosophic Institution.

*Herb. Lawrence.*

A collection formed by the late Miss S. R. Lawrence, of Cheddar. Now in the possession of Mr. S. P. Burroughs, Weston-super-Mare.

*Herb. Powell.*

The collection of the late Miss F. S. Powell, of Henbury. Presented to the Bristol Museum, and now incorporated with the Herbert Thomas Herbarium.

*Herb. Stephens.*

Prepared by the late Henry Oxley Stephens, M.R.C.S. ; and now owned by the Bristol Naturalists Society.

*Herb. Syme.*

The Herbarium of the late Dr. Boswell Syme. Purchased after his death by Mr. F. J. Hanbury.

*Herb. H. Thomas.*

In the Bristol Museum.

*Herb. Watson.*

The collections of the late Hewett Cottrell Watson, preserved at Kew.

*Herb. White.*

The author's Herbarium contains almost all the plants mentioned in the Flora.





## PHANEROGAMIA.

## DICOTYLEDONES.

## RANUNCULACEÆ.

## CLEMATIS Linn.

1. **C. Vitalba** L. *Old Man's Beard. Traveller's Joy*, "because of its decking and adorning the ways and hedges where people travel," Gerard, p. 886. *Virgin's Bower* is an old name of legendary origin.

Native; frequent throughout the district, but most abundant on limestone and in sub-maritime situations. It grows on trap at Damery Bridge, G. July to Sept.

## THALICTRUM Linn.

2. **T. minus** L.

Native; on limestone rocks, very local.

June, July.

**G.** Sparingly in crevices of rock on Clifton Down, where it appears never to have been plentiful, and is now dying out. The first record of the Clifton locality is by Sole about 1786, and the plant was gathered there by Mr. T. B. Flower who possessed Sole's MS. Mr. Thwaites also found it more than fifty years ago (*Swete, Fl.* p.1), and I have a flowering specimen collected by Mr. C. B. Dunn in 1875. But in June, 1882, when the spot became known to me, only three small plants existed and they did not flower. By 1897 the number had been reduced to two. These were still living in 1901, but not flowering.

**S.** Abundant in the Cheddar Gorge.

With reference to the perplexing nomenclature of this variable species the last word on the subject may not yet have been spoken. I have retained the Linnean name as being that most familiar to botanical students. As an aggregate it no doubt included the plants of this district and is therefore not incorrect. The Cheddar *Thalictrum* has been collected by nearly every British botanist of note during the last century, and specimens exist in many important herbaria under the following names:—*T. minus* L.; *T. majus* Sm.; *T. montanum* Wallr.; *T. flexuosum* Bernh.; *T. Kochii* Fr. and *T. saxatile* Schl. or Bab. More than one authority, including Dr. Boswell Syme (*E. B.* ed. III), has believed that there were at Cheddar two distinct forms rather than one, and that opinion was adopted in *Fl. B. C.* ed. I. But the Rev. E. F. Linton, in an instructive note published in *Fl. Som. Addenda*, states that at the present time



the consensus of opinion is that these varying plants really come under one segregate, for which *T. collinum* Wallr. is the oldest and most fitting name. Individual specimens often differ much in appearance; but, as is pointed out in *Fl. Som.*, the comparative bareness or leafiness at the base of the stem seems to depend greatly on situation and exposure. Some plants grow in little soil on ledges of the cliffs, while others are found amid grass and bushes on turf slopes.

First local record:—"in rupibus Chedder-cliff dictis in agro Somersetsiensi;" Hudson, *Fl. Angl.* (1762).

### 3. *T. flavum* L. Common Meadow-Rue.

Native; in wet places, not common in West Gloucester; more frequent in Somerset. July, August.

**G.** Bank of the Frome near Stapleton. By the Avon at Hanham, and between there and Crew's Hole in several places. Formerly at Baptist Mills, now lost. Hallen Marsh, between Henbury and the Severn.

**S.** By the tidal Avon, under Leigh Wood, opposite Sneyd Park. Bank of the Avon at Twerton, Kelston, Saltford and in several spots between Keynsham and Bristol. Brook-side near Long Ashton. Portbury; *D. Williams*. In plenty by the Chew, between Compton Dando and Chewton Keynsham. Moors between Clevedon and Portishead. Claverham. Max Bog, Winscombe, in plenty. Ditch-banks in the marshes here and there from Yatton across to Kewstoke, and down the Cheddar valley by Wedmore to the peat moors, where the plant is abundant.

*T. flavum* has been divided into three segregates distinguished chiefly by the shape of the fruits, but these are so generally subject to the attacks of a gall-fly that it is often difficult to obtain well-developed specimens. Still, there is little doubt that the great bulk of our plants belong to *T. sphærocarpum* Lej., with broadly ovoid, almost globular fruit and a contracted panicle. On the peat moors of Burtle and Edington, however, we have a different form with narrower carpels and (usually) a lax panicle, which Herr Freyn says is correctly named *T. riparium* Jord. The carpels of this plant are quite distinctive, but I find the characters of leaf and panicle, as stated by Boreau, to be very variable in the peat moor examples.

## ANEMONE Linn.

[**A. Pulsatilla** L. From the "MS. Descriptions of British Plants" by Dillenius (circa 1740), quoted in *The Dillenian Herbaria* by Druce and Vines, p. LVII; I extract the following note: "*Pulsatilla vulgaris*, flore majore. . . nascitur porro copiosius in collibus Glocestriensis comitatus v.g. Byburye [Bibury], et semina habui inter Bathoniam et Bristoliam lecta, e quibus haec species in Horto Oxoniense crevit." I have not met with any corroboration of this statement and can throw no light upon it. But it is not in the least improbable that the plant once grew, if it does not still, on some of the suitable ground about Kelston, North Stoke and Lansdown.]

### 4. *A. nemorosa* L. Wood Anemone. Wind-flower.

Native; in woods and thickets, generally distributed but more abundant in some localities than in others. It is not often seen on hedgebanks, but may occur as a survival from woodland cleared for cultivation and enclosed in recent times, as on the ridge between Alveston Common and Elberton, where some roadside banks are full of it. March to May.

Colour-variations of the flower to shades of pink or purple are not uncommon. Some botanical writers have noted the deepest tints as occurring on certain soils, e.g., "stiff clay" and "calcareous or marly." I have not observed such an association in this neighbourhood.

A large patch of the plant, in which the sepals presented themselves in the form of leaves shaped like the ordinary leaves of the species but much smaller, was met with by Miss Roper in May, 1909 on a wooded slope of Hartcliff Rocks, S. This phyllody of the calyx in *A. nemorosa* does not appear to be of great rarity; but it is stated that as a rule the condition occurs much more often in gamosepalous plants than in polysepalous ones.

Although the assertion has been made that the plant never flowers later than the third week in April, in this district certainly it sometimes continues until the middle of May.

[*A. apennina* L. grows on a rocky bank between the outer walls of the dismantled mill and the mill-lead at Iron Acton. Of late years the whole of the ancient mill buildings have been adapted to the uses of a private residence; but this, with the *Smyrniun* and other old-world plants that accompany it, is a relic from a long anterior period. The site shows no sign of disturbance or of modern planting.]

### ADONIS Linn.

#### 5. *A. autumnalis* L. *Pheasant's Eye*.

Alien or colonist, on waste or cultivated land. Is only of casual occurrence in the district and not permanently established anywhere. June and July.

G. By an old quarry (now filled up) on Durdham Down, July, 1855. Waste ground at Redland; *A. Leipner*. Baptist Mills, no date; *Herb. Stephens*. Westbury, 1909.

S. Several plants on cultivated land above Arno's Vale, 1907; *Miss Edmonds*. Two in Portishead Station-yard, 1907! *Miss Roper*. Several there in 1909. A large one on West Hill, Wraxall, June, 1909; *J. W. Eves*. Reported thence also by *Miss Agnes Fry*. Wookey, one plant yearly for some time; *Miss Mayow*. Cornfields on Rush Hill and Odd Down near Bath; *T. B. Flower in Fl. Som*.

"*Adonis Flower*. They grow wild in the West of England among their corn, and are troublesome like Mayweed."—*Culpepper, Herbal*, p. 11 (1652).

### MYOSURUS Linn.

#### 6. *M. minimus* L. *Mouse-tail*.

Native; in cornfields. Very rare.

April and May.

[G. I have no trustworthy record of the occurrence of the Mouse-tail in Gloucestershire. Many years ago I learnt from Mr. Flower that "in a list of Bristol plants of no authority" he had seen the statement that this plant grew in fields near Penpole and Blaize Castle. It being unlikely that any other species could be mistaken for it, I made repeated but fruitless searches in the locality mentioned, and also in arable land about Lawrence Weston. Long afterwards I found the reference alluded to by Mr. Flower in the *Proceedings of the Botanical Society of London* for 1839; where Mr. Thos. Hancock published some notes on plants found near Bristol during an excursion with several members of the British Association in the early part of September, 1836. On that occasion these gentlemen are said to have observed, not only *Myosurus* "in sandy fields near Penpool and Blaize Castle" (a most improbable thing to happen in September); but also several other extremely doubtful or impossible plants such as *Erica vagans*, *Limosella*, *Pedicularis*



*palustris* "on gravelly hillocks," Juniper "rather common in the hedges," and *Carex pauciflorus*! One cannot regard anything thus stated as worthy of credence: the whole story bears the stamp of unreliability.

This little species is, however, so inconspicuous and so uncertain in its re-appearances that even yet we may not unreasonably expect it to be some day detected on the north of the city.]

**S.** Cornfield on alluvial clay in the parish of Portbury within a mile of the Bristol Channel. Discovered by Miss Hill and Miss Peacock, in company, early in 1908. In May, 1909, I was conducted to the place. The crop and accompanying weeds had so overgrown the *Myosurus*, then in fruit, that it could not be easily seen; but evidently there was a large quantity of it extending about 100 yards along one side of the field. Although still in the same enclosure the plant had deserted the spot where it was first noticed the year before—a circumstance in accord with the peculiar sporadic nature of the species. In 1910 it was found to have removed to a third portion of this large field, at a considerable distance from the two previously observed stations; while in 1911 it was back again at the original one. This is the first record for *Myosurus* in North Somerset, and the only place where it is at present known in the whole county. The *Flora of Somerset* contains two reliable references from the neighbourhood of Yeovil; but the author had never seen a Somerset specimen.

It may be of interest to add that, after their discovery, these energetic ladies went into every ploughed field in the two parishes of Portbury and Easton-in-Gordano in hope of finding more of the Mouse-tail, but they saw no trace of it in any other spot.

## RANUNCULUS Linn.

### 7. *R. circinatus* Sibth. *Batrachium circinatum* Sp.

Native; in canals and marsh ditches, locally common. May to August.

**G.** Shirehampton and Stapleton; Flower (1841) in *Phytol.* I. p. 68; and (1854) in *Swete, Fl.* p. 2. "Gloster west, Thwaites cat." *Top. Bot.* ed. II.

**S.** Abundant in the old coal-canals at Midford, Combe Hay and Camerton. Canal at Bath, 1839, *Babington*; and 1884, *J. G. Baker*. Common in the Brue and its tributaries; *Fl. Som.* Very plentiful in ditches throughout the lowlands, extending from Nailsea, Tickenham, Yatton and Weston-super-Mare to Wookey, Wedmore and Highbridge. In the Cheddar Water at Hythe; *Dr. C. E. Moss*.

A well-marked species without variations, always to be recognized by the short, rigid leaf-segments arranged in a fan-shaped plane—never collapsing into a tassel. It begins to flower with us during the latter half of May. I have not seen a Gloucestershire specimen. Mr. Flower's localities have much altered during the last half-century. At Stapleton, in the old days when the three mills were running and the lower Frome had not degenerated into an open sewer, *R. circinatus* might well have grown in a quiet reach of the river, or in the mill-bays. Swete records *R. aquatilis* from the Frome.

### 8. *R. peltatus* Fries. *Batrachium peltatum* Pr.

Native; in ponds, rare.

May to August.

**G.** Pond in a field near Yate Station. In two ponds on Yate Common. Pond on Brimscombe Farm near Yate Rocks! *F. Samson*. Roadside pool near Tortworth. Siston Common. Lyde Green. The Leechpool.

**S.** In three pools on the high ground (Potter's Hill, 600–650 ft.) between Barrow Hill and Brockley Combe. Pond on Mendip near Priddy Nine Barrows, at 1,000 ft. Edington, Burtle, 6 mo. 30, 1845; *Herb. Clark*.

This, the type with large, sweet-scented flowers and peduncles exceeding the leaves, shows a curious liking for the hills in our district. In one of the Potter's Hill pools there is also a smaller form with shorter peduncles, and remarkably hairy fruit.

**9. *R. floribundus* Bab.**

Native; more general than the last.

May to August.

**G.** Ditches between Shirehampton and the Avon. Quarry ponds at Eastfield, between Westbury-on-Trym and Filton. Doynton. Chipping Sodbury.

**S.** Between Pill and Portbury. Flax Bourton. Nailsea Moor. Clevedon; *D. Fry*. Emborrow; *Miss Livett*. Loxton. South Brent.

Earliest record:—Bristol, 1848; *Dr. H. O. Stephens* in *Herb. Watson*.

**10. *R. pseudo-fluitans* "Bab." Hiern.**

Native; usually in streams or deep water. Rather rare. May to August.

**G.** In a stream at Cromhall! *F. Samson*.

**S.** This is the plant so abundant in the Cheddar Water—both in the mill-pond and in the stream below—which has been gathered and discussed by many botanists on their way to the Gorge. I have seen it also in some of the rhines of the Cheddar Valley; in the old coal-canal at Midford; in the Cam Brook; in the canal at Bath and in the Avon above Keynsham. It is recorded in *Fl. Som.* from Chilcompton and Mells, in the S.E. corner of the district. Stream near Gurney Slade! *Miss Roper*.

There are no floating leaves; those submersed are long with flaccid segments. The lower peduncles, in deep water, may attain a length of eight inches; in shallows the whole plant is much smaller and the leaf-segments become comparatively rigid, especially when encrusted. So little fruit is produced that sometimes there is difficulty in finding any, but the plant is by no means sterile. These points taken together with the large cup-shaped flowers should enable this species to be readily recognized. True *R. fluitans* is not found in the district.

"Notwithstanding Hiern's separation, *R. pseudo-fluitans* Bab. and *R. penicellatus* Dum. are usually considered to be the same—one without and the other with, floating leaves."—*Arthur Bennett*, 1905.

**11. *R. heterophyllus* Fries. *Batrachium heterophyllum* S. F. Gray.**

Native; chiefly in lowland ditches, local.

May to August.

**G.** Ditches between Shirehampton and Avonmouth, and between New Passage and Avonmouth. Chipping Sodbury.



**S.** Ditches on Kenn Moor, and on other Moors about Nailsea, Claverham and Yatton. Pond on Dial Hill, Clevedon; *Miss Livett*. Rhines on Burtle Moor; *Fl. Som.* Near Glastonbury; *D. Fry*.

Much of the North Somerset plant accords well with Boreau's description of *R. radians* Revel. This form has floating leaves coriaceous in texture, hairy beneath, and divided deeply into straight-sided wedge-shaped segments that are often themselves stalked, and sometimes merge gradually into capillary divisions like those of submersed leaves. As a British plant *R. radians* was discovered in Yorkshire in 1864. I have explained below that it has been considered by some to be a state of *tricophyllus* with floating leaves, and it is classed under that species by Babington and Druce. But the Professor owned later that quite possibly it might prove to be a distinct species.

VAR. **triphyllus** *Hiern*.

**G.** Between Charfield and Tortworth.

**S.** Marsh ditch between Clapton and Portishead.

VAR. **submersus** *Hiern*.

**G.** Ditches between Shirehampton and Avonmouth; and near the Severn below Lawrence Weston.

**S.** Between Portbury and the Channel towards Portishead. Kenn Moor.

Messrs. H. and J. Groves inform me that our *submersus* is exactly that of the Thames salt-marshes. It is a well-marked form and does not appear to vary from the following characters. Floating leaves absent, submersed leaves divaricate when shaken free from water; peduncles rather long, tapering, often quite straight, usually ascending—sometimes so sharply as to be almost adpressed to the stem. Fruit very rarely developed. It has been suggested that this variety may be a hybrid with *heterophyllus* as one of its parents, but I have never found them growing together. Our knowledge of hybridity in *Batrachia* is so incomplete that no satisfactory opinion can at present be formed on the question. In any case this plant is not a local form, but is widely distributed in marshes near the sea.

## 12. **R. Drouetii** *F. Schultz. Batrachium Drouetii* Nym.

Native; in ponds and ditches, seldom far from salt water, rare. May, June.

**G.** Ditches near the tidal Avon below Sea Mills and Shirehampton. Boiling Well. Between Westbury and Filton, now lost.

**S.** Ponds between Bedminster and Whitchurch; *W. B. Waterfall*. Ditch by the withy-bed at Saltford. Portbury; *C. Bucknall*. Marsh ditches near Weston-in-Gordano. Pools among the sand-hills N. of Berrow. Ditch on Draycott Moor. Nailsea Moor; *D. Fry*. Shapwick Moor; *Rev. E. S. Marshall*.

VAR. **Godronii** *Grenier*.

**G.** Sodbury Common.

**S.** Drain in the moor between Yatton and Kenn.

This rare variety has tripartite floating leaves with sub-sessile or stalked bifid segments,—a feature which gives it a semblance of relationship to two or three different species. The late Prof. Babington, in an able paper on the Batrachian Ranunculi (1855), stated that he was unable to see in what other respects Schultz' specimens of *Godronii* differed from typical *Drouetii*. Yet in the later editions of his "Manual" he considered this form to be equal to *R. radians*, and referred both to *tricophyllus*; and with that altered opinion Dr. Syme (*E.B.* III. p. 24.) agreed. But Boreau wrote as follows under *R. radians*, "Le *R. (Batrachium) Godronii* Gren. in Schultz archiv. pp. 169, 172, *sine descript.* me semble différer par des proportions plus grèles, les fleurs moitié plus petites, les carpelles moins nombreux à carène plus amincie." It appears, therefore, that specimens received from Schultz by both Babington and Boreau had the small flowers and some other characters of *Drouetii*, so I am inclined to follow the *Lon. Cat.* ed. ix in retaining *Godronii* under that species, to which I believe it belongs. The absence of any description by Grenier is a hindrance, but the probable truth is that this form is one of the transitional connecting links met with in several of our more difficult genera. The Kenn Moor plant indeed diverges in the size of its flowers towards *heterophyllus*.

**13. *R. tricophyllus* Chaix. *Batrachium tricophyllum* F. Sz.**

Native; in ponds and ditches, frequent and more widely distributed than the last.

May, June.

**G.** Filton Meads. Ditches in the lowlands below Shirehampton; about Avonmouth; and northward towards New Passage. Stream at Pucklechurch; *Miss Roper*. Pond on Brimscombe Farm, Yate Rocks.

**S.** Brook, Long Ashton. Ponds between Knowle and Whitchurch. Ditch between the G.W.R. and a withy-bed just above Saltford Station. Ditches along the Channel shore between the Avon and Portishead. Kewstoke; *Mrs. Gregory*. Ditches between Brean Down, S. Brent and Burnham; and in the Cheddar Valley near Draycott, and towards Wells. Pools among the sand-hills near Berrow, and ditches between Huntspill and the river Parret; *Fl. Som.*

The plant with floating leaves recorded from near Charfield, G. (*Fl. B.C.* ed. I, p. 7) I now refer to *triphyllum*.

**14. *R. Baudotii* Godron. *Batrachium Baudotii* F. Sz.**

Native; chiefly in ponds and ditches of brackish water near the estuaries, frequent but local.

May to July.

**G.** Shirehampton; *Babington* in 1855. Still abundant in that locality and throughout the angle between the Avon and the Severn. It extends at least as far northward as the Passages and Aust. Roadside pond near Moorend, and in a similar pond between Yate and Iron Acton.

**S.** Ditches between Portbury and the Channel shore, and along the sea-bank towards Portishead. Rhines near Weston-super-Mare; *Mrs. Gregory*. Pools



amid the sand-hills near Berrow, and ditches inland in that vicinity. Salt marshes between the mouths of the Brue and the Parret; *Fl. Som.* From near Huntspill Rev. R. P. Murray obtained a possible hybrid between this species and either *tricophyllus* or *Drouetii*.

The aggregate *Baudotii* can be distinguished readily by the long peduncles—often twice or thrice as long as the leaves; and very numerous carpels, numbering 80 to 100 on each head. The floating leaves have sometimes a dark brown or purplish blotch upon each segment.

First record for Britain: Shirehampton, near Bristol; *Babington*, in *Ann. Nat. Hist.* ser. 2, xvi, p. 397.

**15. *R. confusus* Godron.** *Batrachium confusum* F. Schultz.

Native; in like situations to those of the last species. Rare, or overlooked.  
May to July.

**G.** Near New Passage; *A. Leipner*. Shirehampton marshes.

**S.** Weston-super-Mare; *Prof. Babington* (1855); and *Mrs. Gregory* (1890). Of specimens gathered by Mr. D. Fry near South Brent in June, 1888 Mr. A. Bennett wrote—"Certainly the inland *confusus* or very near it."

This has been accepted as a distinct species by many continental botanists. Although Dr. Syme and others in Britain have looked on it as simply a variety of *Baudotii* with uncertain characters, Prof. Babington held the former view. The plant occurs throughout northern and central Europe and has been found in Sicily. It is defined and separated from the last species chiefly by a slender habit, obovate leaf-segments, long stamens exceeding the pistils, straight peduncles, and carpels narrowed upwards.

Earliest record:—Shirehampton, 1848; *G. H. K. Thwaites* in *Herb. Br. Mus.*

**R. Lenormandi** Schultz. *R. cœnosus* Bab.

Native; very rare. Existence doubtful. I have not seen a Bristol specimen. March to July.

**G.** Oldlands Common, near Bitton; *R. Withers* and *T. B. Flower*. "Woolans" of Swete's Flora is doubtless a provincialism for "Oldlands": the locality, however, is now enclosed or built upon. Shirehampton; *T. B. Flower*.

The great rarity of this species locally, and its absence from North Somerset where there would seem to be plenty of ground suitable for it, is very remarkable. N.B. The station given by Withers for vice-co. 6. in *Top. Bot.* is in Gloucestershire as above stated.]

**16. *R. hederaceus* L.** *Ivy-leaved Water-crowfoot*.

Native; about the margins of shallow pools and streams, often growing on mud, rather common.  
May to August.

**G.** Stoke Bishop, sparingly. Stapleton, by the Frome; and formerly at Hook's Mills. Near the Avon, between Crew's Hole and Conham. Bitton. Shirehampton marshes. Boggy spots and swamps about Mangotsfield Station, and on Siston Common hard by.

**S.** Ashton Park; *Miss Winter*. Swampy edge of a field in Brislington parish, 1905; *Miss Roper*. Boggy streamlet between the Tan-pits and Failand Farm, and swamp in the Old Park. By the Chew between Woollard and Compton Dando. Spring by the path leading up to Blackdown from Shipham, on Old Red Sandstone, and in other similar spots on the higher slopes of Mendip.

**17. *R. sceleratus* L. Celery-leaved Crowfoot.**

Native; by and in ditches and ponds. Rather common and well distributed.  
June to September.

**G.** Ditches by the embankment of the S. Wales Railway at Hook's Mills and the Boiling Well. Ditches between Shirehampton and the Avon; and between Hallen and the Severn. Lawrence Weston. Charlton Common. Pondside, Frenchay. Vinny Green. New Passage. Thornbury. Woodlands, near Almondsbury. Yate. Charfield. Berkeley. Between Rangeworthy and Hall End, in several places.

**S.** About the Malago stream near Lock's Mills, and in Bedminster Meads. Here and there along the course of the Avon between Hanham and Twerton. Ditches below Long Ashton. Portbury, and the salt-marshes along the Channel shore. Nailsea Moor. Clevedon. Kewstoke. Ditches in the Cheddar Valley and southward on to the peat moors.

**18. *R. Flammula* L. Lesser Spear-wort.**

Native; in wet and boggy places, common. June to August.

This species is universally distributed over the British Isles, and over the whole of the northern hemisphere excepting only Sicily and southern Spain. It varies greatly in size, habit, and shape of the leaves, according to soil and situation. The typical habit is with an erect stem rising from a decumbent base. Sometimes when the plant is weak and slender it trails over the ground, the procumbent stems rooting at the nodes. This, the var. *pseudoreptans* Syme, Mr. D. Fry finds well marked in a swamp by the Chew a little way above Pensford, S; and the late Mr. Thos. Clark noted a similar creeping form on the peat moors.

*R. Flammula* is far less frequent on the calcareous soils of the district.

**19. *R. Lingua* L. Great Spear-wort.**

Native; in peaty pools and swamps, rare and local. June to August.

**G.** In a very wet—sometimes flooded—spot on enclosed land in Bitton parish; in considerable quantity and very luxuriant. Many of the plants I saw had reached the height of five feet with leaves  $1\frac{1}{2}$  inches broad. Apparently unknown in the county until the summer of 1908, when specimens were brought to a meeting of Univ. College Botanical Club by Miss Brooks, the discoverer.

**S.** Churchill, 1852; *Herb. Lawrence* (see below). Walton Moor, 1865; *T. H. Yabbicom*, in *Herb. B. N. Soc.* No longer there? Very splendid in swamps near the railway between Yatton and Clevedon. Records for the plant's occurrence near Yatton, Kenn, or Clevedon may all be referred to this locality. On the peat moor near Catcott Drove, south of the railway! *T. Clark*, 1856. Glastonbury Moor, abundantly; *Sole*. Mr. Murray did not find it near Glastonbury, nor have I seen it elsewhere on the peat than in Mr. Clark's station. In Claverton Wood; *Fl. Bathon*. I have no confirmation of this last record.

The specimen in Miss Lawrence's collection came to my notice in 1907, and



was the only intimation that had ever reached us of the presence of the Great Spearwort in that wide tract of North Somerset which lies between Clevedon and the peat moors—about 18 miles as the crow flies. I was not even aware that any suitable swamp or marsh existed in the vicinity of Churchill. Several visits to the parish were made in the hope of a re-discovery; and on the third excursion, in July, 1910, I was delighted to find in some low-lying pasture to the N.W. of the village a large pool where a quantity of this rare plant was blooming above a bed of *Menyanthes*. Such an incident serves to emphasize a fact which hardly needs support, *viz.* that every portion of even the most unpromising ground in a district ought to be examined before an account like the present can be satisfactorily completed.

## 20. *R. Ficaria* L. *Lesser Celandine*; *Pilewort*.

Native; very common and generally distributed in damp places over all the enclosed country. End of February to May.

### VAR. *incumbens* F. Schultz.

This variety is rather rare about Bristol, and seems to be confined to moist shaded situations on low ground, where the plants are luxuriant. I have met with it in fruit about the coppices in Ashton Park. Lane leading from the Bourton road to Backwell. Barrow Gurney. Norton Malreward. Whitechurch. Yanley Lane. Ubley. Saltford; *D. Fry*. Near the old mill at Iron Acton, G.

The amount of fruit produced by the aggregate species varies in different localities. An examination of about 1,000 plants in the district showed that at Westbury-on-Trym only 1 in 400 was fertile; near Long Ashton the proportion was about 1 in 150, and at Backwell about the same. I have been told that near Norton Malreward heads of carpels can be found "in every ditch,"—a frequency that might not, however, be greater than that I have last mentioned. Axillary bulbils are not of very rare occurrence with us. Luxuriant plants on damp shaded hedgebanks develop these bulbous bodies or aerial tubers in the axils of foliage leaves at the end of April. I have specimens from a sheltered lane at Barrow Gurney with stems a foot long carrying at least three leafy nodes, the lower ones with bulbils. The central node on these stems has produced tufts of from four to six opposite long-stalked leaves, and the upper node usually two much smaller ones. Many of the leaves on these plants are conspicuously angular or ivy-shaped. The tubers of its fasciculate root together with those borne upon the stems, any one of which can produce a new plant, render this species quite independent of fruit for its propagation.

In *Herb. B. N. Soc.* there are specimens of an abnormal form possessing 13 to 18 petals and five sepals. These were collected at Shirehampton in March, 1868, by the Rev. W. W. Spicer. And a form in which all the stamens were petaloid—a very pretty plant—occurred as a weed in House's Combe Nursery; 1904. Double flowers have also been observed at Queen Charlton by Mr. C. Withers.

The systematic position of this plant has been a matter of controversy from the earliest times, and no definite decision on the subject has yet been reached by botanists at home or abroad. In the beginning, Dillenius (1719) regarded *Ficaria* as a distinct genus, while Linneus (1753), on the other hand, described the plant as a true Crowfoot. Hudson, De Candolle and Lindley followed Dillenius, while the opposite view was taken by Sir J. E. Smith and Sir Joseph Hooker. Not long ago (*Journ. Bot.* 1883, p. 198), Mr. Thos. Hick pointed out some important characters not previously described, in which *R. Ficaria* differs from the species associated with it. These are:—"opposite phyllotaxis; ternate arrangement of the outer floral envelopes; and the separation of the petals into at least two whorls." Notwithstanding this accumulation of distinctive characters, Mr. Hick declined to claim for the plant a generic position. John Hill (*British Herbal*, 1756, p. 21) puts the case for a separate genus as forcibly as anyone; and makes a good point with his physiological distinctions. After pouring contempt upon Linneus' endeavour to "confound" pilewort with crowfoots, and especially upon his "essential mark" of a nectary on the claw of each petal, Hill lays stress on the soothing and healing properties of *Ficaria*, and continues—"Having thus seen the form and virtues of this plant, the reader will be able to pass a more perfect judgment on that method which proposes it as a species of crowfoot. Here is a herb different in form, shape and virtues from crowfoot, and distinguished by the most obvious and essential parts on a nearer inspection. Can it be reasonable, therefore, when the flower and its cup show a manifest difference, that we should look for a hole in the bottom of the petals to unite this and the crowfoot? Or can it be proper to join together a plant having a cooling root with a whole series of others which are of a burning and caustic nature? This is confounding what Nature has widely separated." While modern writers own the good claims of this plant to a separate genus, they continue to "confound" it—the author of the *Flora of Somerset* alone excepted.

### 21. *R. auricomus* L. *Goldilocks*.

Native; on hedgebanks and wood-borders, widely but thinly distributed. More common in North Somerset than on the Gloucester side of the district. A detailed list of localities seems unnecessary. April and May.

#### VAR. *apetalus* Wallroth.

Is quite plentiful on grassy roadsides etc., east of the Gloucester Road between Patchway and Alveston.

### 22. *R. acris* L. *Upright Crowfoot. Buttercup*.

Native; in meadows and damp pastures, very common. May to August.

My friend and fellow-worker Mr. Cedric Bucknall has taken the lead in an attempt to classify, under the segregates described by Jordan and other continental botanists, the forms of this polymorphous species which grow around Bristol. The examination of a large series of specimens collected in various localities in this district has resulted in the identification of several described varieties. We prefer to treat of these as *varieties* although all of



them have been given full specific rank by their authors. The principal characters relied upon for their discrimination are based on the relative length and the direction of the rootstock or rhizome, and on the lobing and segmentation of the leaves. Other characters are derived from the degree of villosity on stem and petiole, and from the length of the carpellary beak. But this last character is so variable in the same variety, or even in the same individual plant that Mr. Bucknall considers it to be of little value. Besides the named varieties, which can be easily recognized if the specimens be typical and complete, *i.e.*, with root undamaged and good basal leaves, there is, however, a form or group of forms without well-marked characters which may be regarded as the normal or central unit around or on each side of which the named varieties arrange themselves. The plants comprising this primordial or central group, in which the rootstock is neither very long nor very short, and the leaf-division neither very simple nor very complex, are perhaps on the whole nearest to *var. rectus*; but are certainly different from the type of that variety.

A short diagnosis or key to the named forms will best illustrate their relationship to each other and to the above-mentioned normal group, as well as the application of the specified characters; premising that the rhizome is always furnished with fleshy perpendicular fibres, and that the leaves are 3-lobed, with the lateral lobes as a rule again—but not so deeply—bilobed.

I. Rootstock short, perpendicular or oblique.

VAR. **Boræanus** Jord.

*Root very short, lobes of leaves divided into numerous, long, linear, overlapping segments. The lowest joint or internode of the stem is generally very long and nearly or quite glabrous; and the petioles are long and erect.*

VAR. **tomophyllus** Jord.

*Root rather longer, often oblique, leaves much cut but segments shorter and scarcely overlapping; stem and petioles densely hairy. Lowest joint of stem generally short; petioles short and spreading.*

VAR. **rectus** Boreau.

*Root short, thick, irregular, or thinner and straight; lobes of leaves nearly simple, not touching at their margins; stem typically with adpressed hairs, but these in Bristol specimens are often spreading.*

VAR. **pumilus** Rouy et Foucaud. (*R. parvulus* Clairv. non L.)

*Dwarf, few-flowered. This is placed by R. & F., and by F. Townsend as a form under rectus; but while some examples from the Mineries and Shipham on Mendip resemble that variety, others favour tomophyllus in the shape of their leaves; and all are nearer to the latter in the densely hairy stem and petioles.*

II. Rootstock long, horizontal.

VAR. **Steveni** Andr.

*Lobes of leaves generally broad and nearly simple, the lateral not overlapping the petiole.*

VAR. *Friesianus* Jord.

*Lobes of leaves very broad, overlapping each other and reaching or overlapping the petiole ; beak of carpel short.*

The var. *vulgatus* Jord. is stated to differ from the last in the beak of the carpels being longer and uncinatè. *R. nemorivagus* Jord. is a synonym of *R. Friesianus*, Jordan himself having changed the name ; but some more recent authors distinguish two forms :—*Friesianus* with margins of lobes overlapping but leaving a sinus at the base ; and *nemorivagus* with lobes completely overlapping so as to leave no sinus. Respecting these Mr. Bucknall writes,—“ Although from a gathering of plants made at the same time and place individuals can be selected that correspond to each of these three forms, it seems to me that the minute and trivial characters which are supposed to separate them are quite inadequate to constitute distinct varieties ; and an examination of numerous examples in the National and other Herbaria, including plants bearing Jordan’s own label, has confirmed me in this opinion.”

It must be borne in mind that what has been found to obtain in other groups of critical plants is true likewise of this one, viz., that our British examples often do not precisely answer to descriptions made of apparently corresponding forms upon the European continent. A good many do agree fairly well with one or other of them ; but a certain proportion will be always found to show puzzling cross-affinities that prevent a plant from being allotted to any named variety, and sometimes even to either main division.

It has been shown that in this group the direction of the rootstock—whether horizontal, oblique or vertical—is regarded by authors as a fundamental character, most useful in forming primary divisions. Unless, however, a plant grows in sand, peat, or other loose soil, its root seems liable to deflection by obstructions in its path. The character must, we feel sure, sometimes be obscured on stony roadsides and where a thin layer of soil overlies rock, as may happen in such a district as ours. Nor do roots take a direction in line with the aerial stems when plants spring from ditchbanks or the like sloping ground. These considerations should not be disregarded when specimens are being collected ; and in every case one must be careful to extricate the root undamaged.

As regards frequency of occurrence, an analysis of 300 select gatherings from this neighbourhood gives the following result. Eighteen belonged to *Boræanus*, apparently the most distinct and most easily recognized of the varieties. Seventy-eight were placed to *rectus*, a small number only being quite typical : 48 to *tomophyllus*, in general well marked : 29 to *Friesianus* and *vulgatus* conjointly, not many of them entirely satisfactory : 18 to *Steveni*, not without doubt in many cases. The remainder, numbering 109, can only be referred to the aggregate species. They constitute the central group already alluded to, and represent the most common form in our meadows ; a form more abundant than these figures indicate, because as a rule it was passed over when the above collections were put together. Hundreds of it have been observed during the investigation. The var. *pumilus*, of local occurrence, was not included in our enumeration.



Ascertained localities are as follows :—

VAR. **Boræanus** Jord.

**G.** Meadows near Winterbourne; Moorend; and near Leap Bridge, Downend. Compton Greenfield.

**S.** Beggars' Bush Lane. Roadside waste near Charlton Lodge, and about Tickenham Hill. Lane to the Ferry, and the Avonside meadows at St. Anne's, Brislington. Saltford; *D. Fry*. Roadsides near Congresbury and Churchill. Clapton Moor. Cheddar Gorge. Hedgebanks etc., between Priston and Combe Hay.

There is this peculiarity about *Boræanus*, that with us it never constitutes the bulk of *acris* plants in any meadow, but seems to occur only in field-corners and on roadsides.

VAR. **tomophyllus** Jord.

**G.** Meadows below Cook's Folly. Shirehampton. Filton Meads. Charfield. Winterbourne. Ivory Hill. Rodway Hill. Pucklechurch. Severn Beach.

**S.** Keynsham. Beggars' Bush Lane. Near Charlton Lodge and thence to Tickenham Hill by the roadside. Meadows and salt-marsh between Portbury and Portishead. Naish Hill. Clapton-in-Gordano. Winscombe. Wavering Down. Churchill Batch. Cross. Axbridge. Cheddar Gorge. The Mineries on Mendip. Peat moor, Shapwick.

VAR. **rectus** Boreau.

**G.** Meadows below Cook's Folly. Westbury-on-Trym. Filton Meads. Below Rodway Hill. Pilning. Charfield. Olveston. Pucklechurch. Stoke Gifford. Winterbourne.

**S.** Avonside meadows at St. Anne's, Brislington. Beggars' Bush Lane. Markham Bottom. Keynsham Hams. Meadows at Saltford. Clevedon; *Miss Livett*. Clapton. Roadsides, Congresbury. Churchill Batch. Axbridge. Laneside and meadows at Cross. Winscombe, Max and Compton Bishop. Rodney Stoke. Uphill. Peat moors south of Edington and Shapwick Stations.

VAR. **pumilus** Rouy et Foucaud.

**S.** The Mineries and Shiphams on Mendip, locally plentiful. In long, moist herbage this passes into *tomophyllus*.

VAR. **Steveni** Andr.

**G.** Hambrook. Stoke Gifford. Fields near Lyde Green. Lane leading to Caleb's Farm, Northwoods; and pastures thereabout.

**S.** Keynsham. Rodney Stoke. Uphill. Sand-hills near Berrow. Weston-super-Mare; *Mrs. Gregory*.

VAR. **Friesianus** Jord. or *vulgatus* Jord.

**G.** Hallen Marsh. Westbury-on-Trym. Shirehampton. Brentry. Pil-

ning. Compton Greenfield. Pucklechurch. Stoke Gifford. Hambrook. Olveston.

**S.** Markham Bottom. Keynsham. Saltford meadows; *D. Fry*. Clapton. Rodney Stoke. Peat moor, Shapwick.

I have come across only one double-flowered *acris*,—in a pasture between Hallen and Lawrence Weston. It is curious that the first mention of this species in Britain is of a plant with double flowers seen by Gerard (1597) in a “felde next the Theater by London.”

### 23. *R. repens* L. *Creeping Buttercup*.

Native; in wet fields, banks of streams and ditches, cultivated land, etc., very common everywhere. March to October.

Miss Roper reports a plant with 8 petals, found at Nailsea; and she refers me to J. H. Pledge (*Nat. Science*, vol. xii., p. 179; 1898), who observed the following variations in the flowers of *R. repens*,

No. of petals—	4	5	6	7	8	9	10	11	12	13
Frequency—	8	706	145	72	38	15	7	7	1	1

De Vries (*Ber. d. deutschen bot. Gesellschaft* XII., p. 203; 1894), found buttercup petals to vary in number between 5 and 10, as follows:—

No. of petals—	5	6	7	8	9	10
Frequency—	133	55	23	7	2	2

The primary stem in this species, especially in damp situations, is much more robust and produces much larger flowers than the flowering shoots thrown up by the runners towards autumn. The dainty, slender woodland form is singularly different in habit.

### 24. *R. bulbosus* L. *Bulbous Crowfoot*. *Buttercup*.

Native; in meadows and pastures, very common. May and early June.

Less abundant than either *repens* or *acris*; and past flowering when the latter makes its great show in the hayfields. Prof. Leipner observed a flower in which the gynæcium was entirely absent.

### 25. *R. sardous* Crantz. *R. hirsutus* Curtis.

Native; on damp waste ground, pasture and cultivated land. Very rare, and possibly only occurring as a casual in recent times. June to September.

**G.** Stapleton and Lawrence Weston; *Swete, Fl.* Five or six plants on made ground in St. Philip's Marsh, June, 1905. Four there in June, 1906, and two in 1909.

**S.** Several large patches of very fine plants on an embankment of the new road across Ashton Fields. First noticed and still flowering in November, 1909. Glastonbury Moors; *Sole* in *Collinson's Hist.* Catcott Drove, near Burtle; *T. Clark*, 1856. Entrance to Catcott Drove, 1857; *Herb. Clark*. Mr. Murray fears it is now lost from the peat moors. Five or six plants on waste ground



near the bank of Portishead Pill, June, 1902. Three there in 1904. Mrs. Gregory and one or two other botanists have told me that the plant has been seen in the meadow-land (now a lake) behind Portishead Esplanade. I could not find it there; but the locality was certainly a suitable one. Weston-super-Mare, 1726; *Herb. Dillenius*. (First record for Somerset.) Mr. Painter told me that his record for Weston-super-Mare was an error. Cornfields, Charcombe; *Fl. Bathon*.

**26. *R. parviflorus* L.** *Small-flowered Crowfoot.*

Native; in dry places and chiefly on hedgebanks with us, not common.

May, June.

**G.** St. Vincent's Rocks; *Bot. Guide*; *Swayne in Withering*; *T. B. Flower* prior to 1841; and *Thwaites in Swete, Fl.* Sparingly in the lane leading to Baptist Mills; *T. B. Flower in Phytol.* I. p. 68. Lawrence Weston; *Thwaites*. South-western face of Penpole Point, 1900; *Miss Roper*. Kingsweston; *E. Wheeler* in 1879. Still abundant on the Down in 1909; when the mole-hills were covered with it and many tiny plants grew on a cart-track to the quarry. On a hedgebank by the field-path leading from Sea Mills to Shirehampton Park, 1900-1904. Henbury. Hedgebank, Stoke Gifford, June, 1850; *Herb. Cundall*. A dozen plants or more on a bank close to the Horse-Shoe Inn on Siston Common, June, 1898; still there in 1899 and 1902, but not seen since.

**S.** Roadside on Bedminster Down, near the three plantations. Newton St. Loe, and Walton-by-Clevedon; *D. Fry*. Sand Bay by Kewstoke, June, 1898; still there in 1906. Near Hale Well, Winscombe, plentiful, May, 1896; *Mrs. Gregory*. Towards the S.W. end of Brean Down, in good quantity, 1883, 1885, 1888. Several stations near Bath are given in *Fl. Bathon. Suppl.*

**27. *R. arvensis* L.** *Corn Crowfoot.*

Colonist, though apparently native; only on cultivated land, not very common but generally distributed.

June, July.

[*Eranthis hyemalis* Salisb. *Winter Aconite*.

This alien, which occurs rarely as an escape from cultivation, is included in a list of plants published in *Winscombe Sketches among the Mendip Hills*. Mr. David Fry informs me that some years ago he observed a single plant on a hedgebank at Brislington near an old-established patch of *Lamium maculatum*, like which perhaps it might in time become naturalized. This is the only spot in which he has seen it in anything like a wild state.]

**CALTHA** *Linn.*

**28. *C. palustris* L.** *Marsh Marigold.*

Native; in marshes and wet ditches, common at a little distance from the city. The nearest localities are at Failand, Glen Frome, and Stoke Gifford.

March to May.

**VAR.  $\beta$  *Guerangerii* Bor.** = *C. Cornuta* *Schott*.

Rare; at Stapleton by the Frome, 1879; in a boggy meadow near Bitton, *Miss Roper*; Botlands, Chew Magna; and near Wells in 1880; *Miss Livett*.

The important characters for the variety are that the ripe follicle tapers

gradually into a long beak, and that the sepals are non-contiguous. Boreau (*Flor. Centr.* ed. 3, II, p. 21), describes the upper leaves as “*fortement crénelées-dentées*” as against “*légèrement dentées*” in *C. palustris*.

## HELLEBORUS Linn.

### 29. *H. viridis* L. *Green Hellebore*.

Native or denizen; in stony thickets and old orchards usually; rather rare.

February to April.

**G.** In the Trym valley above Combe Dingle. Henbury Combe; *Herb. Powell*. Six or eight plants on the outside of an orchard hedge on Horton Hill, 1911! *Miss R. Stone*. Tortworth Park; *Canon Ellacombe*. Kilcot and Waterley, near Wotton-under-Edge; *V. R. Perkins*.

**S.** The Roman encampment in Leigh Wood. In a stony pasture on high ground between Failand House and the upper Clevedon road, with ancient apple-trees and grass-grown mounds hard by, indicating some abandoned habitation. This patch extends quite twenty yards, and was in excellent state in 1910, shortly after it had been reported on as defunct! Steep overgrown bank of a stream on a wood-border above Portbury; fine and plentiful. Formerly in the angle of a lane leading from Portbury to Upper Failand; but was eradicated, together with some *Sambucus Ebulus* which grew at the same spot, by misguided school children in their uncontrolled zeal for “Nature Study.” *Miss Peacock* informed me that to her amazement on one occasion *seven roots* of the Hellebore were smilingly presented to her from Portbury. Surely it behoves persons who undertake this kind of instruction to exercise discretion, and restrain their simple-minded pupils from acts of mischief. In the north-western portion of Ashton Court Park, on the Clarken Combe side, abundant! *A. E. G. Way*. Bourton; a few plants in a large pasture below Belmont Hill towards Bourton Batch. There are some old apple-trees there also, and a few daffodils. Hedgebank on a laneside beyond Woollard towards Compton Dando; a good many plants and no sign of cultivation there. Open field behind Publow Leigh near Pensford! *Miss Roper*. The plants are in a shallow gully with some brambles, near the centre of a large rough pasture where no trace of buildings exists nearer than a farmstead nearly half a mile away. Abundant on a grassy slope close to Winterhead Farm below Shipham on Mendip; a spot pointed out to me by Mr. David Fry. This locality has also been described as near Sidcot. Orchard at Sandford. Several other stations on Mendip are given in *Fl. Som.* Wellesley Farm, near Wells; *Miss Livett*. Monckton Farleigh, and Bathford; *Herb. Flower*. Between Batheaston and St. Catherine’s; *Dr. Davis* in *Fl. Bathon*.

The leaves of typical *H. viridis* are described as being finely pubescent beneath, while the British plant, in common with most of it in France and Germany, is entirely glabrous. Druce has pointed out (*Journ. Bot.* 1890, p. 227) that the proper name for the latter should be var. *occidentalis* Reuter.

The few clumps that grow in the Combe (or Trym) valley below Westbury (one of our oldest recorded stations) have not always been found in the same



place. The three that flowered in 1910 were at a considerable distance from the spot where I first observed the plant many years before. It has been long known that plants can change their positions locally when they have exhausted the soil-constituents which they require. A perennial like *H. viridis* could do this by persistent root extension in one direction; or by the replacement of old decrepit individuals by seedlings springing in fresh soil. But this Hellebore never seems to raise a numerous progeny. The Trym valley colony has been travelling down hill.

### 30. *H. foetidus* L. *Stinking Hellebore*.

Certainly native in our aboriginal limestone woods; although likely to have been introduced in some other localities. Rare and local.

February and March.

**G.** Stapleton Wood, 1835; *Stephens, Cat.* Wood between Stoke Bishop and Sea Mills; *Swete, Fl.* Now gone, I believe, from both those localities. Several large plants on a rocky bank overlooking the old mill-leat at Iron Acton, with *Smyrnum*, *Narcissi* etc.; close to an ancient building and doubtless the site of cultivation at a remote period. Woods in Tortworth Park, 1796; *Baker in Withering*. Still there on rocky slopes in several directions! In a wood above Wotton-under-Edge; *D. Fry*. South side of Ashen Plains Wood, Dursley; *Miss Gingell*.

**S.** Ham Green; *Herb. Powell*. *Swete* writes—"Naturalized at Ham Green"; but at the spot where I found the plant—on the bushy edge of a low cliff overlooking the Avon—it looked wild enough, being well away from the grounds of the mansion. I met with only a tuft or two: Mr. W. B. Waterfall has told me, however, that to his knowledge an abundance formerly existed at the place. Rocky bank in a lane skirting the lower side of a wood towards the bottom of Tickenham Hill; outside the hedge for about 40 yards, and some finer plants within the wood, 1907. But in 1911 only four small ones remained. Several plants in Wraxall Woods; *J. W. Eves*. Four widely separated patches on Chelvey Batch, 1911! *Miss Roper*. Cleeve Toot and Goblin Combe, scattered over the stony slopes. Churchill Batch, on rocks above the road. Hillside near Rowberrow, 1851; *J. H. Cundall*. To the south-west of the camp on Dolebury; *F. A. Knight*. King's Wood, near Yatton; *Miss Winter*. Brockley Combe. About Hutton, and near the old church at Uphill; not truly wild; *St. Brody, Fl. Weston* (1856). Bushy rocks near some old iron-works in a ravine between Mells and Great Elm. Asham Woods; *Fl. Som.* Frequent about Bath; *F. Inman* and *T. B. Flower*. But only one station—by a farmstead on Claverton Down—is mentioned in *Fl. Bathon*.

Except in the south and east of England *H. foetidus* is generally considered to be doubtfully indigenous. But, as has been stated, in our old woods on the skirt of Mendip it grows with every appearance of being truly wild—the nature of the ground and surroundings precluding the possibility of cultivation. On some of the rocky slopes and precipitous scree plants of all sizes are to be seen, isolated or in patches. Strikingly handsome are the larger ones with their pallid masses of drooping cup-shaped and purple-edged flowers rising above the dark olive-green of the perennial leaves.

"Mem. July 27, 1757. I went to Mr. Warner at Woodford, Essex . . . he shewed me his thumb and fore-finger so poisoned, swelled and inflamed with much pain from opening the greenish pods or seed-vessels of the Stinking Black Hellebore or Bearsfoot; it rose in blisters but when the water was let out the pain abated."—*P. Collinson*.

### AQUILEGIA *Linn.*

#### 31. *A. vulgaris* *L. Columbine.*

Native; in bushy, fuzzy spots and open woodland; preferring the limestone although not confined to calcareous soil. Rather common. June and July.

**G.** On Durdham Down, still plentiful. St. Vincent's Rocks; *Shiercliff's Guide* for 1789 and *T. B. Flower*. Bushy bank in the Trym valley above Combe Dingle, and on Combe Down. Henbury Combe; *Herb. Powell*. Left bank of the Frome, opposite Stapleton. Priest Wood, near Cromhall. Very abundant on oolite in the woods above Wotton-under-Edge. Lower Woods, Wickwar! *Mrs. Woodford*. Woods N.W. of Dursley; *Miss Gingell*.

**S.** Leigh Wood; opposite the Sea Wall and higher up, nearly as far as Rownham Ferry. Introduced on an embankment and cutting of the G.W.R. near Long Ashton. Freeman's Farm, Barrow Common. Thickets above the inn at Barrow Gurney; *F. Samson*. Border of wood above Portbury, and along the limestone ridge by Clapton and Cadbury to Clevedon, where I have seen it in the Fir Wood. On the southern flank of the ridge it appears about Wraxall (behind the Tower House; *F. Samson*), and Tickenham Hill; and becomes plentiful on the outskirts of Limeridge Wood, where are many plants with pink flowers. Backwell Hill, abundant. Woods at Portishead and in the Big Wood, Weston-in-Gordano; with white flowers there; *Misses Cundall*. King's Wood near Yatton; and Col. Long's woods at Congresbury. Sandford Hill, with white flowers; *H. S. Thompson*. Hutton Combe; *Mrs. Gregory*. Burrington Combe. Cheddar Gorge. Gurney Slade! *Miss Livett*. Houndstreet; *D. Fry*. Asham Woods. Between Midford and Combe Hay; *T. B. Flower*. Wood near Fortnight; *Misses Cundall*. Claverton Down; *Fl. Bathon*.

Columbines are peculiarly liable to irregularity of floral structure. Several of the abnormal variations of this kind which are mentioned by Dr. Masters in his *Vegetable Teratology* have been noticed in this district. The most remarkable instance within my own observation is that of a plant on Backwell Hill, S., which bore flowers with ten spurred petals of customary size, each of which contained a series of three other petals enclosed one within the other, "hose-in-hose" fashion.

### DELPHINIUM *Linn.*

#### 32. *D. Ajacis* *Gay. Larkspur.*

Alien or colonist. Sometimes continuing for several years in succession, but its occurrence at any spot cannot be relied upon. June, July.



**G.** St. Vincent's Rocks, July, 1850; *Herb. Cundall*. At the old colliery working known as "Holly Gess," near Kingswood, 1883-8. On made ground in St. Philip's Marsh, sparingly in 1902; two plants there in 1903; four in 1904; and a dozen or so in 1905: not seen since. Cornfield near Dursley, 1865; *St. Brody* in *Herb. Br. Mus.*

**S.** In a sandy field near Kewstoke, several years in succession; *T. F. Perkins*. Not known there now. Burnham and Brean Down! *Mrs. Gregory*.

[**D. *Consolida L.***

Casual at St. Philip's, Bristol in 1904. Weston-super-Mare 1850; *Herb. Lawrence*. Is mentioned in an anonymous list of Bristol Plants of date about 1830.]

## ACONITUM *Linn.*

### 33. *A. Napellus L. Monkshood.*

Native by stream-sides in North Somerset; elsewhere an outcast. Locally plentiful. July, August.

**S.** In abundance on both banks of a stream skirting the southern edge of Downside Common, near Edford. It occurs in patches of considerable size, and extends at least a mile and a half—probably more, but the stream enters private grounds and cannot readily be followed.\* Several miles lower down, however, between Great Elm and Mells, the plant recurs on the same stream for a short distance. Abundant by the river Frome and its branches at Vallis and elsewhere; *Dr. H. F. Parsons*. A few plants by water in the corner of a copse near Failand Farm, 1879; these seemed to have sprung from garden refuse which had been cast near by. They did not long continue. On the bank of a stream at Wellesley Farm near Wells; *Miss Livett*. Lane in Bourton leading to the Combe, with other introduced plants; *Miss Winter*.

Monkshood occurs similarly on riverbanks in East and South Somerset, as far down as the Dorset border. There is a different kind of situation, however, at Park Wood near Bruton, where I am informed by Dr. Moss the Aconite is extremely abundant and beautiful. This wood is on a watershed, and that fact goes far towards settling the question of the plant's nativity in Somerset. On the northern side of the Bristol Channel it grows abundantly, in shaded ditches and wet coppice, for some miles in the Ely valley, Glamorgan; and is there considered to form part of the aboriginal vegetation. In Herefordshire too, with which county the first notices of the *Aconitum* as a British plant are connected, it is found on the banks of several brooks and rivers in great quantity: truly wild in the opinion of many botanists who have noted the particulars of their observations. The conclusion that Aconite is native in Britain is indeed endorsed by competent authorities. Had it been mostly

\* The Edford locality may be more closely defined as a marshy wooded valley half way between Holcombe and Stoke Lane, west of the road that connects those two places. The valley is in the two parishes of Stoke Lane and Stratton-on-the-Fosse: it is called variously "Edford Common," from the tiny hamlet of Edford not far off; "Stoke Common"; "Stratton Common"; and "Stoke Bottom," which last is the name used by resident cottagers. Nearly all these names have been used in recording plant-stations from time to time by either Mr. Murray in *Fl. Som.* or myself, before we became aware that they referred to the same spot.

of garden origin, the plant would certainly be found under like conditions in other counties to the eastward, instead of being practically confined to the West Country. Its case seems to be clearly analogous to that of the Snowdrop with which it often grows.

"This beautiful but deadly plant, although originally an escape from gardens, is in many places seen to grow thoroughly wild in the neighbourhood of Bristol. It may be gathered at Ashton, in the Leigh Woods, at Dundry, and at Shirehampton. Near the village of Stapleton is Frome Glen, a lonely and picturesque spot, where the river cuts its way through the new red sandstone and furnishes a luxuriant habitat for a long list of plants. . . . A small wood near this spot is a favourite resort of the author. In its midst may be gathered the Aconite, growing luxuriantly, and often nearly a yard in height. . . ."

The above note is quoted from an article written by the late W. W. Stoddart, F.C.S.; F.G.S. on *Bristol Pharmacology*, published 1871 in the "Pharmaceutical Journal, 3rd series, vol. I." It will be seen that the author, a naturalist and chemist of distinction, points out that the plant as he found it was a garden outcast. Yet its abundance in Frome Glen must have been considerable, for Mr. Stoddart speaks of having used 2 lb. av. of roots dug from that spot in some analyses that he conducted. One would not like to suggest that those experiments made an end of the Frome Glen colony, still it is certainly remarkable that no mention by another botanist of the plant's existence in that locality has come under my notice.

"Although described as a perennial, the term requires a certain modification when applied to *Aconitum Napellus*. An aconite root really survives but one winter. In the autumn the tap-root, from which the flowering stem has been produced, dies away; and its place is taken by a younger root which has gradually developed from the parent during the summer, and is destined to bear the flowering stem during the following year. Each root has therefore only one year's existence."—*F. Ransom*, in *Pharm. Journ.*

[*Pæonia corallina* Retz. *Peony*.

On the Steep Holm. The island is within the county of Bristol. An account of an excursion to Steep Holm by the Cardiff Naturalists Society in May, 1883 (publ. *Trans.* vol. XV), is accompanied by an illustration depicting the extent and condition of the plant at the time. Its state at a later date and its history are described by the Rev. R. P. Murray in his *Flora of Somerset*. See also *Journ. Bot.* 1891, p. 269.

The difficulty in deciding the point whether the Peony be indigenous or no upon the Holm lies in the fact that the island has been used from remote ages either as a stronghold, a refuge for the fugitive, or as a monkish hermitage; and of course it is well known that the recluse almost invariably included in his cultivations herbs reputed to have a medicinal value. Peonies had that reputation. And it is remarkable that the plant seems not to have been observed by any of the older botanists on their visits to the island. It appears to have escaped notice—if indeed it were really there in earlier times—until near the close of the eighteenth century.

"*Pæonia officinalis*. This was found by Mr. Rootsey, growing wild in a thicket near Blaize Castle, which would go to disprove the statement that it was introduced into this country. There were two or three specimens, but not in flower."—*T. Hancock* in *Proc. Bot. Soc. London*, 1839, p. 27. Little more is known about this. I understand, however, that the present Mrs. Harford remembers the Peony growing in Blaize Castle Woods, and that it was exterminated by the public many years ago when admission was unrestricted. Several plants have been introduced on the Blaize Castle estate.]



## BERBERIDACEÆ.

BERBERIS *Linn.*34. *B. vulgaris* L. *Barberry.*

Native or Denizen; rather rare. Bird-sown or planted in some of its localities. May and June.

**G.** One bush in a small hedge near Stapleton Bridge, and one in Stern's Lane, Hambrook, 1909; *C. Alden*. Four bushes on the border of a rough pasture at Old Down, Tockington; *Miss Roper*. Hedge between Wickwar and Wotton-under-Edge; *V. R. Perkins*.

**S.** One bush in a field hedge off Yanley Lane, Long Ashton. One near the high road on the Bristol side of Bourton Batch. A fine clump in Markham Bottom, above Haberfield Bridge; pointed out to me by Mr. L. W. Rogers. One tree in a wood on the southern side of the Portishead road, east of Portbury; associated with Horse-chestnut and Laburnum. St. Anne's Wood, Brislington, 1849; *Herb. Cundall*. Clapton-in-Gordano, in a hedgerow close to an orchard. Castle Hill, Clevedon; *W. E. Green*. Two bushes in a hedge close to Banwell village. For a yard or two by the side of a stream below Rowberrow; *D. Fry*. Hedges on the Hallatrow Court Estate! *R. V. Sherring*. Nunney; *Rev. S. Laing*. For some yards in a pasture hedge by the way going down into Combe Hay from the old canal. Wells, possibly bird-sown; *Miss Livett*.

The intermediate stage of a wheat smut-fungus (*Puccinia graminis* Persoon), is passed upon the Barberry and has been recognized on the leaves of our bushes in Markham Bottom. The deleterious influence of this shrub upon corn was well known long before any scientific proof or explanation could be furnished; and in consequence barberries have been ruthlessly extirpated by agriculturists from the hedgerows of fields throughout the kingdom. Had it not been so, the number of stations here recorded would certainly have been much greater.

In America, as early as 1760, an act was passed by the legislature of Massachusetts compelling the inhabitants to extirpate all barberry bushes.

Withering (*Botanical Arrangement*, ed. 2, 1787, p. 366), writing of wheat mildew and *Berberis vulgaris*, says: "This shrub should never be permitted to grow in corn fields, for the ears of wheat near it never fill, and its influence in this respect has been known to extend so far as 300 or 400 yards across a field."

For detailed information on this interesting subject see Plowright's *Monograph of the British Uredineæ and Ustilagineæ*, pp. 46-56, and 163.

[*Epimedium alpinum* L. was once gathered in a coppiced part of Leigh Wood many years ago by Dr. Rogers and Dr. H. O. Stephens, as is recorded in *Phytol.* vol. I, p. 774; and vol. II, p. 931; and I have a specimen labelled, "near Bristol," no date, from a small collection formed by a Clifton student about the year 1848. There is no other evidence of the plant's existence in the district. Although not indigenous anywhere in the kingdom, I understand that in the North of England it grows in rocky woods not unlike our own at Leigh.]

NYMPHÆACEÆ.

CASTALIA *Salisb.*

**35. *C. speciosa* Salisb.** *C. alba* Greene. *Nymphæa alba* L. *White Water-Lily*.

Native possibly in one or two places, but planted for ornament in very many of its localities. Rather common. July.

**G.** In ponds at Redland; Shirehampton; Westbury-on-Trym and Henbury. In the river Frome by Oldbury Court. Pool near the railway at Dursley.

**S.** Pond by Ham Green. In a boggy pool, known locally as "Wurple Pool," on high ground (600 ft.) between Barrow Gurney and Brockley Combe; far from any habitation. The plant flourishes here amid a mass of *Menyanthes* and *Ranunculus peltatus*; and looks really wild, as my report states in *Fl. Som.* p. 412. Tickenham Moor; *Herb. Stephens*. In the river Chew, just above the old mill at Compton Dando, with small flowers, perhaps the var. *minor* DC.; *D. Fry*. Very abundant for half a mile in the canal between Camerton and Radford. The finest show in the district is afforded by a large pool near the railway below Brent Knoll Station; and there are one or two similar pools nearer Highbridge.

The earliest mention of Bristol in connection with a Water-Lily is by L'Obel in 1570. But the reference is to some peculiarly small-flowered form, "fere magnitudine Chelidonii minoris aut Palustris Calthæ," and is too wide to constitute a record. In a letter to Collinson, Nov. 1739,\* Dillenius writes:—"The Water Lily is called 'Nymphæa alba minor' by C. Bauhin and others. It is not a common plant, nor observed to grow in England but by Lobelius; but his direction is so large that notice hath not been taken of it, for he says in his *Adversaria*, p. 257, that it grows in slow and shallow waters as you travel from London to Oxford and Bristol. Lobelius can't be understood of the *Morsus Ranae* for he describeth that on the next page, and knew and distinguished plants very well."

NYMPHÆA *Linn.*

**36. *N. lutea* L.** *Nuphar luteum* Sm. *Yellow Water-Lily*.

Native; in rivers, ponds and boggy ditches, rather common. Often planted. July.

**G.** In the river Frome at intervals near Iron Acton, Frampton Cotterell, Frenchay and Stapleton. Swamp and pond in the bottom behind Winterbourne Church. Pond at Henbury. Frequent in the Avon between Crew's Hole and Hanham. Brook near Stone; *E. Smart*.

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\* *Hortus Collinsonianus*: an account of the plants cultivated by the late Peter Collinson Esq. F. R. S. Arranged by L. W. Dillwyn, 1843.



**S.** In the river Chew at Compton Dando, and again at Chewton Keynsham. Ham Green. Abundant in the Avon in many parts of its course between Twerton and Keynsham; *D. Fry*. Pond at Portishead. Henton, west of Wookey; *Miss Livett*. In the river Brue.

## PAPAVERACEÆ.

### PAPAVÉR *Linn.*

#### 37. *P. Argemone* L. *Long Prickly-headed Poppy.*

Colonist; in cornfields formerly, but now found usually in other cultivations and on waste ground near the railways. Rare. May to July.

**G.** Sparingly in a cornfield on the Fishponds bank of the Frome, opposite Stapleton. Cornfields at Stapleton, 1835; *Stephens, Cat.* Border of cultivated ground near Mangotsfield Station; *Miss Livett*. In June, 1888 there grew a patch of perhaps 100 plants, some of them very large, on the northern edge of the cutting a few yards from the old Patchway Station. In a field of Sainfoin, etc., near Winterbourne Church, June, 1909; *C. Bucknall*. Among corn on Ivory Hill, sparingly, 1909.

**S.** Brislington; *Rev. W. H. Painter*. Field of green fodder at Wraxall, 1906; *Miss Lock*. Old brick works by the railway below Nailsea Station; *Miss Livett*. Near the old Weston Junction, permanent; *Mrs. Gregory*. Cornfields at Uphill, 1843; *G. S. Gibson in Phytol.* I. Still at Uphill, 1890; *Mrs. Gregory*. A few plants on the shingle close to Brean Down, 1888; *D. Fry*. Burnham, near the Pump Room, 6mo., 13, 1836; *Herb. Clark*. Sandy field at Burnham, and banks at Berrow, 1888; *D. Fry*. And in both those localities from time to time until 1906, proving the plant's existence about Burnham for seventy years, at least. Rush Hill, near Twerton, 1848; *Herb. Flower*. Bathampton, 1906; *Miss Peck*. South Stoke, Limpley Stoke, etc. *Suppl. Fl. Bathon*.

Half a century ago Mr. Flower noted this as being "not infrequent in Bristol cornfields."

#### 38. *P. hybridum* L. *Round Prickly-headed Poppy.*

Colonist; in cornfields formerly. Very rare. May to July.

**S.** Cornfields at Burnham; *T. B. Flower*. Abundantly in fields at the mouth of the river Parret, at Steart and Burnham; *J. C. Collins, MSS.* in *New Bot. Guide, Suppl.*

The connection of *P. hybridum* with this district depends on these statements of Mr. Flower and the Rev. J. C. Collins; as no specimens are extant. The

latter gentleman was an old friend of Mr. Thos. Clark, and they often botanized in company. The specimens in Clark's herbarium, gathered on the western side of the Parret towards Bridgwater, show that he knew the plant well; so the presumption should be that Collins knew it also. I think therefore that although he did not preserve any specimens (it is doubtful if Collins ever formed a botanical collection) we should credit his record for this poppy at Burnham. Casual in the Station-yard at Portishead! *Miss Livett*.

"In England . . . usually capricious in its appearance." *Dunn's Alien Flora*.

First records for the two last species:—"Argemone capitulo longiore et A. capitulo torulis caniculato. . . . In Angliæ Sommerseti . . . . segetibus."—*Lobel, Obs.* p. 144 (1570). "These plants do grow in the corne fieldes in Somerssetshire. . . ."—*Gerard*, p. 301, (1597).

### 39. *P. Rhœas* L. *Common Red Poppy*.

Colonist; in cultivated and waste ground. Very common and generally distributed. June to August.

#### VAR. *Pryorii* Druce.

**G.** Cornfield at Milbury Heath, on the high ground towards Tytherington; where the plant was originally observed by Miss Roper in 1910. Cultivated land on the western slope of Ivory Hill near Frampton Cotterell.

Differs only in having the hairs on the peduncle of a crimson colour instead of white. But that is a conspicuous feature, especially when the plant is in bud; for, as pointed out by Mr. Druce (*Fl. Berks.* p. 31), the hairs then crowd much closer together. As the peduncle lengthens they are drawn widely apart and the character becomes less noticeable. The plant grows usually in small quantity together with the Common Poppy, and is probably more widely distributed than is shown by the above records, although we have looked into many cornfields without seeing any of it. Mr. Bucknall has shown me a specimen from near Winterbourne with pale pink hairs, and another with hairs of a golden yellow. We have, therefore, three of these variations from the type. Mr. Bucknall has so far refrained from giving names to the two latter!

### 40. *P. dubium* L. *P. Lamottei* Boreau. *Long Smooth-headed Poppy*.

Colonist; on and about cultivated land, roadsides, and sandy wastes near the Channel. Rather common. May to July.

**G.** Waste ground at Baptist Mills, and Ashley Hill. Cornfield, Stapleton; *Herb. Stephens*. Quarry-tips and potato ground at Conham. Among vetches by Combe Dingle. Cornfields near Winterbourne, Patchway, Almondsbury, Milbury Heath and Alveston. Walls of a barton near Winterbourne Church, 1909. Ivory Hill. Roadside west of Mangotsfield.

**S.** Garden at Knowle. Allotments, Brislington. Dundry, on old quarry refuse. Cornfields, Portbury; *Misses Hill and Peacock*. North side of the Court Hill, Clevedon. By a field road, Wraxall. Very abundant about Weston-super-Mare in 1880, and subsequently. Similarly plentiful about void houses



and waste ground at Burnham, Berrow and Brean. Uphill. Easton and Wookey; *Miss Livett*. Twerton, on rubbish by the river. South Stoke. Noted from several localities at Bath in *Fl. Bathon*.

#### 41. *P. Lecoqii* Lamotte.

Colonist; in the same kind of situation as the last species, save that this shows no preference for the coast. As Mr. Murray points out (*Fl. Som.* p. 16), this is much less common, although on account of the difficulty observers find in separating it from *Lamottei* the plant may be really less rare than might appear from our published localities. The peculiar form of the capsule, with the deep yellow tint of the milky sap on exposure to the air, should suffice to distinguish it. And the difference in attachment of the stigmatic disk in the nearly ripe capsule is also a good character. It happens that I have but one record for Gloucestershire.

**G.** Among rye in Filton Meads by the field-path to Charlton, 1909! *Miss Roper*.

**S.** Abundant on cultivated land between Stockwood and Whitechurch; whence it was first brought under notice by the Rev. W. H. Painter in July, 1883. Cultivated fields between Keynsham and Stockwood, 1886 and subsequently; *D. Fry*. Mr. Fry reported that besides being abundant at that spot, it was also frequent about Whitechurch on cultivated ground, and one plant was observed there growing on the wall of the churchyard. The adjoining parish of Queen Charlton yielded specimens in 1889. Old lane at Keynsham, 1901; *D. Fry*. Mr. Fry has it also from Corston, Berrow, and the peat moor near Shapwick. Among corn near Wrington. In a clover-field on Lansdown. Roadside, Uphill. Abundant on refuse at South Liberty Colliery, June, 1906; *F. Samson*.

#### 42. *P. somniferum* L. *Opium Poppy*.

Alien; sometimes of garden origin; sometimes introduced with eastern grain or seed. Rare. July to September.

**G.** Plentiful in a cornfield on the hillside above Wotton-under-Edge; July, 1899. "On the sandy shore of the Severn, near Westbury and Aust. . . . Here the plants do not attain a very large size; the capsules rarely exceeding the size of a walnut, and the whole plant reaching the height of 12 or 14 inches."—*W. W. Stoddart*, 1871.

**S.** Sand-pits on the eastern and southern sides of Tor Hill, Glastonbury, 1832 and 1836; *Herb. Thos. Clark*. Noted from the Tor Hill locality also in *New Bot. Guide*, published 1835, by *Gapper*. Waste ground at Weston-super-Mare, 1843; *G. S. Gibson*. Uphill; *H. S. Thompson*. Brean Down; *St. Brody*. Spread widely over the sand-hills at Burnham; *J. C. Collins* in *N.B.G. Suppl*. Apparently now lost from these N. Somerset coast stations. Scattered over a large potato-field by the Clapton Road near Clevedon, Sept. 1905. Still there in 1907; and in 1909, when some garden poppies had made their appearance in the same field.

**MECONOPSIS** *Vig.***43. M. cambrica** *Vig. Welsh Poppy.*

Native; in the Cheddar Gorge upon screes and rocky slopes on both sides of the road, and I have seen a few plants on ledges of the highest cliffs. It flowers on until the end of September in a dry season, and maintains its ground fairly well although excursionists gather all they can reach.

In 1886 specimens were exhibited at a Bath Flower Show by the late Mr. A. E. Burr, who ticketed them "from a large patch in the middle of a wood near Hampton Down"; where doubtless seeds must have been sown. I can find no other mention of the plant's occurrence near Bath. It grows in South Somerset.

First local record.—"Sed nec ipsi Angliæ hanc plantam deesse constitit mihi, anno 1726, dum rupes Chedderenses plantarum gratia perlustrarem, in ejus cautibus eam cum Tunica rupestri [*Dianthus cæsius*] folio cæsius molli observavi; quæ rupes inter oppida Chedder et Axbridge, in Somersetsiensi comitatu, sitæ sunt."—*Dillenius, Hort. Eltham. p. 301 (1732).*

[*Rœmeria hybrida* DC. *R. violacea* Medic. Casual in Portishead Station-yard, 1906; *Miss Livett*. Three plants there in 1907; and more in 1909.]

**GLAUCIUM** *Mill.***44. G. flavum** *Crantz. G. luteum* Scop. *Horned Poppy.*

Native; on the shores of the Severn Sea and Bristol Channel, now far less plentiful than a generation ago. This diminution is not from natural causes, for the plant is a hemi-halophyte, able to resist full exposure to forceful westerly winds, spray, and occasional submergence at the highest spring tides.

May to August.

**G.** Abundant on a beach of shingle facing the English Stones, south of the Severn Tunnel. Quite gone from Avonmouth, where I last saw it in 1882.

**S.** Formerly frequent at Portishead, according to T. B. Flower and W. E. Green; but now very rarely seen either there or at Clevedon. From Anchor Head and Knightstone, Weston-super-Mare, the plant has long since disappeared. It now grows chiefly on Brean sands, south of Brean Down, becoming scarcer towards Berrow and Burnham. Twenty years ago it made a great show on the beaches of Steart Island and Steart Marsh. I understand, however, that cheap boating trips from Burnham have since altered the floral features of those localities.

**45. G. phœniceum** *Crantz. G. corniculatum* Curtis.

Casual; on cultivated and waste ground. Rare. A beautiful continental weed that comes to us with imported grain.

June and July.

**G.** A few plants on an old colliery waste-heap between Hanham and Warmley, in 1881 and four or five succeeding years. Abundant in a turnip-field near Warmley in 1887. Two plants on a dust-heap by the Avon in Bitton



parish; 1894. Several on rubbish in St. Philip's Marsh in 1902, 1903 and 1904. One at Baptist Mills, 1911! *Miss Roper*.

**S.** A large plant on Portishead Station-sidings in June, 1906. Highbridge Docks, 1907; *Dr. C. E. Moss*.

## CHELIDONIUM *Linn.*

### 46. *C. majus* *L. Celandine.*

Denizen; on old walls, and about farm buildings; rather common in all the villages around Bristol. It seems as if the plant could not exist without a good supply of nitrogenous food, as it flourishes chiefly where there is house refuse or drainage from farm or cottage, and is very rarely to be met with in the open country. Still, I have never seen it cultivated.

With double flowers at the edge of a pasture by the Rectory at Henbury, G.  
May to August.

## FUMARIACEÆ.

### CAPNOIDES *Mill.*

[*C. solida* *Moench. Corydalis* DC.

Alien, scarcely naturalized; very rare.

The plant grows in an open portion of a small wood on the coal-measures at Coalpit Heath, G., whence it was first reported by Miss Cockle in 1905. This wood is by no means a shrubbery or recent plantation, but appears without much doubt to be a remnant of the woodland tract—the ancient Forest of Kingswood—which formerly covered the whole country thereabout. Although private, it does not seem to have been used as a game preserve. It is surrounded by arable land and pasture, and contains nothing but native vegetation. The *Corydalis* rises amid root-leaves of sanicle, goldilocks and wild chervil, which very shortly after its flowering would entirely conceal it. Patches made up of more than a dozen plants, extending five or six yards, existed at the time of discovery. I saw about the same quantity in 1908. Miss Livett has a specimen gathered on the skirt of Wells Palace grounds in 1888. At that date the place had been suffered to run wild, and was overgrown. Mrs. Dent Young sends it to me (1910) from a spot near the Midford brook, a quarter of a mile from the village: no gardens there, and none anywhere on the brook at Midford.]

### 47. *C. lutea* *Gaertn. Yellow Fumitory.*

Alien; naturalized on walls and about old gardens, always near houses; frequent.

March to May.  
May to August.

I have records from nearly all the older villages and hamlets in the district.

### 48. *C. claviculata* *Druce. White Climbing Fumitory.*

Native; very rare, and occurs in very small quantity. June to August.

**G.** On a bushy sandstone bank where the bare rock outcrops within a mile or so of the village of Iron Acton. The plant appears to extend over a very small area. Discovered by C. Bucknall and the author in June, 1908. This is the only locality known in the county of Gloucester.

**S.** St. Stephen's Hill, near Temple Cloud! *T. B. Flower*. First observed upwards of 70 years ago, and cited for that locality on Mr. Flower's authority in

Babington's *Fl. Bathon. Suppl.* pub. 1839. The station—a bushy slope above a stream near the bottom of the hill—would seem to afford favourable conditions for the plant's continuance; but from some unknown cause it gradually diminished in quantity until 1890 when very few of the fragile stems were produced. On subsequent visits, a few years later, neither Mr. Sherring nor I could find any.

This is a very scarce and local species in S.W. England. The habitats described above are both secluded spots in the open country that show no signs of interference. I cannot guess the reason why this plant should be what it evidently is, unfortunately, a dying-out species in our district.

### FUMARIA Linn.

#### 49. *F. pallidiflora* Jord. *Ramping Fumitory.*

Native or Colonist; on hedgebanks, rubble-walls and cultivated ground; rare. May to September.

**G.** Hedges, Ashley Down; Stapleton; Crew's Hole; *Swete, Fl. Brist.* as *capreolata*.

**S.** Hedgebank by the roadside between Axbridge and Cheddar, June, 1882; found when in company with Miss Livett and the Rev. R. P. Murray. A fine patch on the top of a walled bank by the roadside just out of Axbridge to the northward, June, 1907. Still near that spot in 1910. Elborough, between Hutton and Banwell; *Mrs. Gregory*. Two or three plants in a deserted cultivation on Steep Holm; June, 1890. Still there, 1910; *Dr. Gough*.

The *English Botany* drawing was made by J. E. Sowerby from a Somerset specimen, but the locality is not on record.

#### 50. *F. purpurea* Pugsley. (*Journ. Bot.* 1902, pp. 135, 179.)

Native or Colonist. Very rare.

**S.** Hillside above Christon; *Mrs. Gregory*.

A new segregate, differentiated from plants that had been placed under *F. Boræi* by British authors.

#### 51. *F. Boræi* Jord.

Native or Colonist. Very rare.

**G.** A single plant by a watering-place on the Frome near Iron Acton, 1909; *C. Bucknall*. It looked as if a seed had been brought down by action of the water from some cultivated ground higher up the river where the plant may exist in larger quantity. One in an oatfield between Fishponds and the Frome, July, 1910. Both these specimens were named by Mr. H. W. Pugsley.

**S.** Hedgeside, Wrington, Sept. 1900; *Mrs. Gregory*. Clapton-in-Gordano; one plant among mangolds, Sept. 1910. Waste ground, Wells; *C. Bucknall*.



**52. *F. confusa* Jord.**

Native or Colonist; on cultivated land, rare. More common in West Somerset. June to September.

**G.** Cornfield between Fishponds and the Frome. A couple of plants, certainly this, in allotment ground at West Town, Shirehampton, Oct. 1909.

**S.** A garden weed at Wells; *Miss Livett*. About Shapwick railway station; *Fl. Som.*

**53. *F. officinalis* L. Common Fumitory.**

Native or Colonist; on arable land, and as a garden weed. Rather common and well distributed. June to September.

**54. *F. densiflora* DC. Close-flowered Fumitory.**

Native or Colonist. Very rare. June to September.

**G.** Hedge, Downend, 2 June, 1855; *Herb. Cundall*; as *capreolata*, but the specimen is undoubtedly this species. Gloucester West, *Withers MS.* in *Top. Bot.*

The plant thus named from waste ground, Wells, 1896; *C. Bucknall* in *Journ. Bot.* 1897, p. 123, is now thought by Mr. Pugsley to be a weak form of *F. Borœi*.

Although it is quite possible, as contended by the author of the *Flora of Somerset*, that the Fumitories may truly be natives of Britain, yet many of them are found so sparingly in the Bristol district, and at such wide intervals, that their occurrence here appears to be merely that of agrestal weeds that reach us by accident. It is remarkable that, in so large an area, this genus should be so imperfectly represented.

## CRUCIFERÆ.

**[*Malcolmia africana* R. Br.**

Casual on made ground, St. Philip's, Bristol, June, 1902. A fine plant on Portishead railway-sidings, June, 1907; *Miss Roper*. And another there in 1909; *Miss Hill*.]

CHEIRANTHUS *Linn.***55. *C. Cheiri* L. Wallflower.**

Alien or Denizen; on rocks, walls and ruins. Rather common.

May to July.

In great abundance on St. Vincent's Rocks, where in early summer the cliffs are brightened by its gay and fragrant flowers. Conspicuous also on the ledges of Steep Holm, and on the ruins of Glastonbury Abbey. Abundant on quarried rock at Old Down by Tockington, G.

**RADICULA** *Hill.***56. R. officinalis** *Groves. Nasturtium R. Br. Water-Cress.*

Native; in spring-heads, streams and lowland ditches. Common.

May to July.

Very variable in size and appearance according to the circumstances under which it grows. The stems may attain the length of three feet or more, and be an inch thick, = var. *siifolium*; or the whole plant, starved when growing out of water, be slender and tiny—a few inches over all, = var. *microphyllum*.

**57. R. pinnata** *Moench. Nasturtium sylvestre R. Br. Creeping Yellow-Cress.*

Native; in shallows of streams and other wet places. Rare in Gloucestershire; more frequent in Somerset.

June to August.

**G.** Bank of the Avon at Crew's Hole and Conham; whence it has been on record nearly a century. Pool near the Frome by Stapleton Road Gas Works, 1911! *Mrs. Sandwith.*

**S.** Bank of the Avon by Keynsham; *T. F. Inman.* Damp spot at side of the Wells Road, half a mile beyond Whitechurch, July, 1904; *Miss Livett.* Nailsea Moor! *D. Fry.* Pondside, Highbridge, 1906; *Miss Livett.* Bank of the Cheddar water at Hythe; *Dr. C. E. Moss.* Moor ditch by Nyeland, Cheddar Valley; *C. Wall.* At Wedmore! *Miss Ruddock.* Frequent in marsh ditches south of Wedmore. By the Brue near White House, and by a canal-lock near Highbridge, 1859; *Herb. Clark.* Catcott Drove; *Fl. Som.*

**58. R. palustris** *Moench. Nasturtium palustre DC. N. terrestre Sm. Marsh Yellow-Cress.*

Native; on muddy waste ground, riversides, and peat moors. Rather rare except in the southern portion of the district.

July, August.

**G.** River-bank in Glen Frome, Stapleton; *Herb. Stephens,* and reported thence by other botanists. On mud tipped into the quarry on Clifton Down near the top of Pembroke Road, 1904. Moist hollow in St. Philip's Marsh, 1904, Near Mangotsfield, July, 1850; *Herb. Cundall.* Pondside in the bottom behind Winterbourne Church, 1909. Roadside marsh near Vinney Green; *Misses Cundall.* Under Wyck Cliffs; *Miss Knapp,* 1834, in *Herb. Powell.* At Wyck, by the riverside; *Fl. Bathon.* Still there in 1900. Edge of a pond in Yate village, 1898; now destroyed.

**S.** Bank of the Chew near Compton Dando. Damp spot by the railway near Ham Green; *Mrs. Sandwith.* By the Avon at Saltford; *D. Fry.* Kenn Moor; *S. T. Dunn,* 1905 and *Dr. Moss.* Marshes between Berrow and Brent Knoll; and between Wedmore and the river Brue. Burnham and Highbridge; *W. B. Waterfall.* Polsham, half way between Wells and Glastonbury; *Miss Livett.* The peat near Shapwick Station, and on other parts of the peat moors.



**BARBAREA** *R. Br.***59. B. vulgaris** *R. Br. B. lyrata* Asch. *Yellow Rocket.*

Native ; in damp hedge-bottoms, and about ditches and streams. Common. May to July.

A plant with spreading erect-patent pods, and so differing widely from the type, was gathered many years ago in the marsh by Stapleton Bridge. It does not agree with any variety known to me, but may be Druce's *decipiens* which I have not seen (*Fl. Berks.* p. 44). A single specimen, much like *B. stricta* Andrz. and possibly it, occurred as a casual near Abbotsleigh. It was sent to me by Mr. J. H. Fryer in 1903.

VAR. **transiens** *Druce.*

**S.** A large patch on a field border by the Wellsway, three miles out of Bath. This attracted my attention in the spring of 1910 by the slightly darker yellow of its flowers, and the peculiarly long linear lobes of the upper leaves which gave the plant a very distinct appearance. I went again later for a supply of fruit, and then saw that the pods were precisely those of type *vulgaris* both in beak and direction. Mr. Druce has seen examples and considers them to be identical with his own gatherings from Berkshire.

**60. B. intermedia** *Boreau.*

Colonist ; in corners of fields and on waste ground. Rare. May to July.

**G.** On quarry rubble between Fishponds and the Frome, several years in succession. The place has since been filled in and built upon. Two plants by the field road from Sneyd Park to the riverbank, June, 1905 ; and one on the railway under the Downs, May, 1909 ; *C. Wall.*

**S.** On an embankment of the North Somerset Railway a short distance north of Pensford Station ! May, 1898 ; *C. Bucknall.* A large plant with many stems in the station-yard at Portishead, May, 1904. Over a hundred in the corner of a field that had been cropped with lucerne, on Tickenham Hill ; a solitary one by the gate leading into an adjoining pasture, and about a dozen on the roadside some distance lower down, May, 1909. Several in the corner of a pasture on Nailsea Moor, June, 1900. One large plant at Clevedon railway station, 1906 ; *Miss Livett.* One large one on a field border north of Fortnight Farm near Bath, June, 1909.

Although widely distributed in Britain as a casual or colonist this plant seems to occur but rarely, and then only in small quantity. Doubtless it must be often overlooked. I had specimens in my possession for some years before they were recognized. Still, the small deep-yellow flowers and short adpressed pods should be sufficiently distinctive : in other respects the species is, as stated by Boreau, a good intermediate between *B. vulgaris* and *B. præcox*.

Taste, like colour and smell, may give a mark of difference between species ; and it well serves to separate some of these *Barbarea*s. The next species is a desirable salad herb, while *B. intermedia* is unpleasantly bitter. M. Crepin, in *Plantes rares ou critiques de la Belgique*, remarks :—" J'insisterai toutefois

sur la différence de saveur qui existe entre le *B. intermedia* et le *B. præcox* : le premier est d'une abominable amertume, tandis que le second n'a point de goût désagréable, et de plus est mangé en salade. Si les phytographes avaient plus fréquemment insisté sur cette différence de saveur, nul doute que la confusion du *B. intermedia* avec le *B. præcox* n'eût été ni si prolongée ni si générale."

First recorded for North Somerset and West Gloucester by the author : *Journ. Bot.* 1904, p. 208.

**61. *B. præcox* R. Br. Early Winter-Cress.**

Colonist ; in dry stony and waste places ; frequent. Occasionally a stray from gardens, but in some spots permanent for many years. April to June.

**G.** On some ledges of St. Vincent's Rocks, yearly for a long period ; and now and then by the Observatory building. Montpellier ; *W. E. Green*. About Mangotsfield Station, 1898-9. Durdham Down and Conham ; *Swete, Fl.* St. Philip's Marsh, 1910. Persistent about the stone quarries by the Frome near Stapleton and Fishponds, whence specimens were obtained by Dr. H. O. Stephens and by Swete. Five or six plants by the Willsbridge Mill near Bitton, June, 1905. A few in a cornfield between Lyde Green and the Westerleigh Road, 1910. A dozen on a wall by Cleeve House, Downend, May, 1910. Frampton Cotterell, June, 1905 ; *C. Wall*. A small colony on a bank close to Yate Station, April, 1909 and the following year ; *C. Bucknall*. Hedgebank by Yate Rocks, 1909 ; *id.* Roadside at Tortworth, 1887.

**S.** Leigh Woods, by a roadside, 1910 ; *A. E. G. Way*. Embankment of Ashton Avenue, 1910. Brislington ; *E. Wheeler*. Clevedon ; *Herb. Stephens* and *D. Fry*. Long Ashton, Bourton and Brockwell ; *T. B. Flower* in *Phytol.* I., p. 68. A weed in gardens at South Stoke ; *Herb. Jenyns*. On Odd Down, Bath, June, 1891. Bristol Road, Weston-super-Mare, 1888 ; and on Worle Hill, 1898 ; *Mrs. Gregory*.

**ARABIS Linn.**

**62. *A. hirsuta* Scop. *A. sagittata* DC. Hairy Rock-Cress.**

Native. Frequent on rocks in the Avon Gorge, and wherever the limestone crops out in the district : also on old walls in many places. Similarly on exposed oolite and old quarry rubble around Bath. I have seen a few plants on the peat of Shapwick Moor.

May to July.

**63. *A. stricta* Huds. *A. scabra* All. Bristol Rock-Cress.**

Native ; on limestone in the Avon Gorge on both banks of the river (W. Gloucester and N. Somerset) ; and at Penpole Point, G. Until recently these were the only known habitats in Great Britain.

April, May.

The plant is to be found in many spots within its limited area, on the live rock as a rule, but often on loose rubble and in turf. In this respect it differs from some other rock species of great rarity which confine themselves exclusively to unquarried precipices, and whose seeds do not appear to germinate



on the loose soil below. The situations of our Rock-Cress, therefore, are nearly always accessible. Exposed as it thus is to the ravages of thoughtless gatherers, it behoves every botanist to do all he can for its preservation. Happily, although not so plentiful as formerly in spots that are close at hand, it holds its ground fairly well at the present time. There need be no undue anxiety concerning its continuance, or fear lest it be extirpated, for in one or two places a little further removed from casual observation, it grows literally by hundreds. The duration of this plant is peculiar and uncertain: neither annual, nor biennial, nor even that of the herbaceous perennial in which only the root outlives the winter. Seedlings flower in their first year, and do not then die. The radical rosettes are evergreen; one to begin with, and that one succeeded by others up to three, four or more in time on the same root, as it divides into branches that are not true stolons. Flowering stems are produced annually, often before the persistent withered ones of the previous year have shed all the seeds they bore. Four or five years must, I think, be the ordinary limit of age; but as the plant seldom thrives in cultivation, that point is not easy to determine. I recall one ancient individual, occupying a secluded niche, with a woody branched rootstock that carried eight rosettes raised high above the soil. Of these several had flowered more than once. The age of that plant could not have been less than ten years: possibly it was more. In gardens it usually dies off in the second or third year; but on her sheltered rockery at Weston-super-Mare Mrs. Gregory was fortunate enough to keep a specimen alive twelve years! During that period it flowered profusely and ripened plenty of seed; but no seedlings were noticed to spring around the parent. This plant had eventually six rosettes attached to lengthy divisions of the root; the whole forming a lax evergreen tuft.

The earliest historical mention of *A. stricta* is as follows:—"Cardamine pumila bellidis folio alpina. Nuper in rupe S. Vincentii prope Bristolium in Anglia invenit D. Jac. Newton." *Ray, Hist. L.*, p. 817, (1686). Ray, too, gathered the plant at that date. Johnson (*Merc. Bot.* p. 26) localized the "*Dwarfe dasye-leaved Lady-smocke*, on the rockes nigh the Quarrie by Bath." Had this been correct the record could be put back to 1634; but it has long been believed that Johnson was mistaken, and that *A. hirsuta* was really his Bath plant. It is true there have been one or two other reported occurrences of *A. stricta* at Bath, as well as at Wyck and at Cheddar—where indeed Syme in *English Botany* states that it grows—but the probability is that the same error was made in these later cases also. I understand that no specimen exists from any one of them.

Lightfoot and Banks noted it in 1773 on ledges of rocks "a little above high-water mark beyond the new well-house"—probably near the bottom of the Gully. There is an excellent figure in *Shiercliff's Bristol and Hotwell Guide* endorsed "E. Shiercliff del., April 1792"; and in the text "Rocks on the Leigh side of the river."

In May 1894 specimens determined to be *A. stricta* without doubt were forwarded from the Llandrindod district in Radnorshire by D. T. Gwynne Vaughan, Esq., of Howey Hall. In view of this recent discovery some

remarks in *The British Herbal* by John Hill, M.D., published 1756, are of peculiar interest and significance. The author writes of the "Daisy-leaved Ladysmock, *Cardamine pumila bellidis folio*, . . . It is common on the mountains in Wales, whence the winds seem to have blown some of its seeds to Bristol; the plant some years being very frequent on St. Vincent's Rock." Dr. Hill seems to have been acquainted with our plant, but what other Crucifer he confounded with it is not apparent.

[*A. perfoliata* Lamark. *Turritis glabra* L.

An alien, with no claim to be considered a Bristol plant. Withering in 1796 (*Arr. Brit. Pl.* ed. iii, p. 589), gives St. Vincent's Rocks and the quarries above Bath as stations; the latter on Mr. Swayne's authority. There is a specimen, apparently this, in *Herb. Perrin*, from "Upper Easton, Bristol;" probably a casual. These are the only records.]

[*A. alpina* L.

Alien. "Near the White House, one and a half miles from Bristol going to Kingswood, 1773;" *Herb. Banks*. And from the same spot, 1837; *Herb. Watson*.

Where is this White House? Does anyone know the place and the plant?]

## CARDAMINE Linn.

64. *C. impatiens* L. *Narrow-leaved Bitter-Cress. Impatient-podded Lady's Smock.*

Native; in open woodland both on limestone and coal-measures, and at the foot of limestone screes. Local, and curiously uncertain in its appearances. Abundant in one year at a locality, it may then be entirely absent the next, or for several years afterwards. It is a tender species and possibly suffers from late frosts.

June and July.

G. On both banks of the river in Glen Frome; chiefly on the Stapleton side, but was quite abundant on the left bank in 1900 after disturbance of the ground in construction of a new path and fence. In subsequent years this abundance rapidly diminished. Quarry in Oldbury Park; *Miss Roper*. One plant on the pennant sandstone a little way above Crew's Hole, Sept. 1885; but on searching the locality again in the summer of 1886 we were unable to rediscover it. Border of a wood near Tortworth.

S. In Leigh Woods, the next valley below Nightingale Valley; pointed out to me in 1900 by the late L. W. Rogers. In late June, 1903 I saw it not only in that valley, but in another ravine that goes down from near the Roman encampment to the railway. There were hundreds of fine plants in this new spot where the species had never before been detected. The year following not one could be found, and only a very few in 1905-6. The late Edwin Lees, F.L.S., relates a similar disappearance of this plant after an unexpected and abundant crop in Worcestershire, (*Phytol.* III., p. 512). Cheddar, among rocks in the Gorge, four or five plants in 1883! *Miss Livett*. Found there also in 1892! *Mrs. Gregory*; and in 1910 by *Mrs. Sandwith* and *Miss Roper*. In a rocky combe N. of Cheddar Gorge I saw about fifteen good plants in June, 1898; but none there in 1900 nor in 1905. Foot of Callow Rocks near Sidcot, 1907; *Dr. C. E. Moss*. Between Little Elm and Whatley; *Dr. H. F. Parsons*, 1880. Still there in 1910; *Rev. S. Laing*. Prior Park and Lyncombe; *Add. Fl. Bathon*. Claverton Down and Smallcombe, Bath, frequent; *Miss Martin*. Sporadic on waste ground near Twerton! 1903; *Miss Martin*.



Earliest British records :—" *Sium minus* impatiens . . . . I found it about Bath and other parts of this Kingdome." *Johnson, Gerard em.* p. 261 (1633). "In Rils and ditchbanks about Bath." *Merrett, Pinax*, p. 20 (1667).

**65. *C. flexuosa* With. *C. sylvatica* Link. Wood Bitter-Cress.**

Native; in damp shady places and by water; rather common.

April to June.

Rootstock oblique, shortly creeping, biennial or perennial, very different from the fibrous root of *C. hirsuta*. Radical leaves few; stem zigzag, angular.

**66. *C. hirsuta* L. Hairy Bitter-Cress. Land Cress.**

Native; on walls, banks and tillage ground; very common everywhere.

March, April.

Rootstock none. Annual. Stamens usually four, but sometimes six on the same plant.

**67. *C. pratensis* L. Cuckoo-flower. Lady's Smock.**

Native; in moist meadows, marshes, and on ditchbanks; very common in such situations.

April and May.

Is unusually showy on hedgebanks and along little roadside rills under Maes Knoll towards Norton Malreward and Norton Hautville.

The flowers are sometimes double on plants that grow in very wet places. Of these I have the following notes.

**G.** Frenchay, in two fields, really double; *H. J. Wadlow*. By the Frome near Iron Acton; *Miss Roper*. Often near Thornbury and near Dursley; *Miss Gingell*. Old Sodbury, 1904. Many plants in a meadow at Alderley; *F. Samson*.

**S.** Bishopsworth, 1880; *Oliver Giles*. In Kewstoke Bay, 1890; *Mrs. Gregory*. Between Great Elm and Mells, one plant, 1907. Rich water-meadows at Orchardleigh; *Fl. Som.* Near Bath; *A. E. Burr*. Two localities near Compton Martin; *Dr. Gough*.

It seems to me that the double flowers are not always truly double by substitution of petals or petal-like bodies for stamens and pistils; but are sometimes examples of median floral proliferation, wherein a new inflorescence is developed in the centre of the primary one.

Kerner and Oliver (*Nat. Hist. of Plants*, vol. II., p. 550) attribute changes from the normal in the development of flowers to the operations of Gall-insects; and state that the flowers of *Cardamine* would not become double were they not under the influence of Gall-mites.

In the *Flora of Berkshire* Mr. Druce draws attention to the fact that our common and widely distributed plant, with lilac flowers and three pairs of stalked cordate leaflets, is not the true Linnean *Cardamine pratensis* as restricted by Prof. Kerner and others; but is the *C. palustris* Petermann. The true plant has five to eight pairs of sessile leaflets, and the flowers are usually white. As seen by me in the Upper Engadine this latter has certainly a very different facies with which I have met with nothing to correspond in this district.

*C. pratensis* does not always perfect its seed-pods; but when growing in moist ground—as indeed is commonly the case—the plant multiplies freely by a process of proliferation from leaflets of the lower prostrate leaves, a peculiarity noted by Smith (1825), but not by modern authors with the exception of Syme. Gemmæ develop usually close to the base of the terminal leaflet, at the point where the first pair of veins comes off from the midrib, and new plants may become rooted in the soil before separation from the parent occurs. The late Dr. G. F. Burder watched this viviparous process in his garden at Clifton; and concluded that, far from being exceptional, it was the common method by which the plant was propagated. Repeated examinations of plants in the field have shown that over 70 per cent are viviparous—more in bogs, less in dry places.

[*Dentaria bulbifera* L. According to the Sole MS. this grew at one time abundantly in Prior Park, Bath. It is supposed to have been destroyed in building the mansion that became later a Roman Catholic College. See *Lecture on the Bath Flora* by Rev. L. Jenyns Blomefield, in *Proc. Bath Antiq. Field Club*; i, p. 57. There is no other record.]

### HESPERIS Linn.

#### 68. *H. matronalis* L. *Dame's Violet*.

Alien; on river banks, in ditches and moist woods. Rare. May and June.

G. Blaize Castle Woods, Henbury, June, 1840; *Herb. Powell*.

S. Naturalized about 1840 at St. Anne's Wood, Brislington, but has been long destroyed; *T. B. Flower*. Formerly at Long Ashton; *T. B. Flower*. A garden weed at Failand. Two or three plants on the left bank of the Chew a short distance below Pensford, near an orchard; a spot pointed out to me in 1889 by the late L. W. Rogers. I saw it still there in June, 1891, but could not find any at the place in 1898. Portishead, 1903; *Miss Peck*. Banks near the Grove, Weston-super-Mare, and at Hutton, rare; *St. Brody, Fl. Weston* (1856). An outcast on the rocks N. of Weston-super-Mare, 1888; *Mrs. Gregory*. Bank of a rhine near Uphill, 1895; *Misses Cundall*. Farleigh Castle, Bath, May, 1839; *Herb. Flower*. Prior Park Woods, 1869; *Herb. Jenyns*.

Familiar as a garden flower, cultivated from the earliest times. It seems to make an escape rather frequently and become naturalized when conditions are favourable. Old writers treated it as a British plant; but it seems always to occur by accident, usually in single specimens, and never maintains its hold for any length of time.

### SISYMBRIUM Linn.

#### 69. *S. officinale* Scop. *Hedge-Mustard*.

Native; by roadsides and in waste places everywhere except on the higher hills. June and July.

#### VAR. *leiocarpum* DC.

Waste ground, St. Philip's, Bristol! 1906; *Miss Roper*. I have looked



for this variety hundreds of times without success. But certainly I do not think much importance should be attached to a glabrous-podded state of a plant which does not differ from the type in any other particular. Such a variation seems more noteworthy, however, when the two forms grow together in the same locality under precisely similar conditions, as do the forms of the Common Charlock. *S. leiocarpum* is apparently very rare in other districts. In Lancashire, for instance, it is said to be merely casual as it is with us.

### 70. *S. Sophia* L. *Flixweed*.

Denizen or colonist; in waste sandy places, very local. June to August.

**G.** Casual on waste ground, St. Philip's, Bristol; two plants in 1901, and one in 1902. Several in 1907. Three in 1911.

**S.** On banks and sandy wastes about Berrow and Burnham, abundant in some years, less frequent of late. The soil there must contain plenty of seeds, for I have seen fine crops of the plant appear in the neglected gardens of void houses. It has been known on that part of the Somerset coast for nearly a century: the late Thos. Clark gathered specimens at Steart Point, Steart Marsh and at Burnham in 1818, 1824, 1827, and 1836, as shown by labels in his herbarium. Frequent about Worle in 1889; *Mrs. Gregory*. Sandy fields near Weston-super-Mare; *St. Brody*. Casual at Twerton, 1902; *S. T. Dunn*. Several plants in Portishead Station-yard, 1906 to 1911.

This species is considered by some to be indigenous, but I am inclined to agree with the author of the *Flora of Somerset* in thinking it may well have been derived from former cultivation, since it was of old held in great repute as a medicine.

Parkinson, in his *Theatrum* (1640), has a very good figure. He extols the virtues of Flixweed in many diverse disorders and accidents, even "to consolidate broken bones and out of joynt," adding "it is called by Dodoneus in his Latin Booke, by Lobel and by Gerard, *Sophia Chirurgorum* (Wisdom of the Surgeons), by which name it is now generally knowne."

John Hill (1756) says "*Sophia Chirurgorum*, or by the common people *Flixweed*, a corrupt way of speaking *Fluxweed*. This name has been given to it for its virtues, which ought to make it more regarded."

### 71. *S. Thalianum* Gay. *Arabis Thaliana* L. *Thale Cress*.

Native; on walls, banks and cultivated ground, rather common.

March to May.

**G.** Baptist Mills. Glen Frome. Stapleton. St. George's. Rock slope, Hanham; *Miss Roper*. Frenchay, Hambrook, Moored and Winterbourne Down. "On walls near Mangotsfield, Glouc." *Swayne*, 1796. Still there in several spots, 1909. Warmley, and on the old tramway between that place and Oldlands: and again at Willsbridge in small quantity. Sand-pits on high ground above Bitton. Iron Acton. Abundant on Ivory Hill; *C. Bucknall*.

**S.** A garden weed near the Suspension Bridge. Pill and Ham Green. Among corn at Portbury. Portishead. Arable fields and elsewhere about

Brislington, Keynsham and Pensford. Clevedon. Plentiful on walls at Chew Magna; in the Wrington valley; and about the Mineries on Mendip. Hallatrow, Farrington Gurney, and Uphill; *Miss Roper*. Coast between Brean and Burnham: conspicuous among the arenophilous species which find a suitable home in thin sward on the landward side of the sand-hills.

Earliest local record:—"Turritis minor foliosa . . . I found it upon a Stone-wall not far from *Axbridge* in Somersetshire." *Ray, Syn. ed. III, p. 294* (1724).

## 72. *S. pannonicum* Jacq.

Alien. A waste ground introduction from Eastern Europe, now looking as if it meant to stay with us and become a frequent weed.

June to September.

**G.** On the filled-in area of St. Philip's Marsh, Bristol; where I first noticed a few plants in 1887. A larger number were there in 1888, and it has continued every year in varying quantity until the present time. A large plant or two by the tow-path under Sneyd Park, June, 1906. On rubbish by Stapleton Road Gas Works, 1911; *Mrs. Sandwith*. A few on waste ground by Avonmouth Docks, 1910. Roadside at Yate, July, 1906.

**S.** Potato-field on the Clapton Road near Clevedon, 1905. Clevedon, 1906; *Miss Livett*. Portishead Station-yard, 1903 to 1908. Made ground by Burrington Station, 1906.

[**S. Columnæ** Jacq. *S. orientale* L.

Alien; in like situations to the last, but less frequent, and of more recent introduction. Can easily be mistaken for *S. Irio*, the London Rocket, to which it bears a general resemblance; but the pedicels of the latter are at least one-fourth the length of the pods.

In June, 1904 there were 20 to 30 plants scattered along both sides of a road newly made across St. Philip's Marsh, Bristol. Several there also in 1906, and some in 1909. Two at Sea Mills, 1910. Casual at Twerton, 1897; *S. T. Dunn*. Portishead railway-sidings, 1896 and subsequently.]

[**S. hispanicum** Jacq.

Alien. A plant of the Pyrenees and central Spain. On town-refuse, St. Philip's, Bristol, 1896! *C. Bucknall*. A large patch of it there in 1907-9. Although with us several years in succession it does not appear to form good fruit.

In reporting on some specimens of this alien forwarded to the Watson Ex. Club in 1910 two referees disagreed with the naming and considered (*Rep. p. 220*) that the plant might prove to be either *S. obtusangulum* or *Brassica elongata*. The genus is a difficult one, and however much trouble may be taken with an identification there is usually room for some difference of opinion, especially where fully developed fruit is not available. But Mr. Bucknall and I have no hesitation in rejecting the proffered suggestions.]

## ALLIARIA Adans.

### 73. *A. officinalis* Andr. *Sauce-alone. Jack-by-the-hedge.*

Native; on hedgebanks, very common.

May and June.

## ERYSIMUM Linn.

### 74. *E. cheiranthoides* L. *Wormseed. Treacle-Mustard.*

Native or colonist. Usually a weed of cultivation; but possibly wild on the peat. On arable or waste land, and on peat moors in the south of the district; frequent.

June to September.



**G.** Kingsdown; *Rootsey's List*, 1828. Stapleton; *Herb. Stephens*. On refuse in St. Philip's Marsh, 1906; *Miss Roper*. On a wall at St. George's; *W. E. Green*. Wapping Wharf, Bristol Harbour, 1911. Many plants in an oatfield between Fishponds and the Frome, 1910. Railway bank under the Downs, 1907; *A. E. Hudd*. Plentiful in a field of roots between Filton Meads and Charlton, 1907; *Misses Cundall*. On the rubble of a lias quarry near Bitton, and one plant by the old tramway at Bitton, Sept. 1906. Brickyard, Warmley, 1908. In a potato-field north of Pucklechurch, 1905; *Misses Cundall*. Twenty plants on a roadside at the Dog-trap Colliery, Engine Common, 1910. Abundant over an acre of potato ground at Rangeworthy, 1910. Cromhall, 1902. Abundant in cultivated fields on Breakheart Hill above Dursley, 1902 and 1906.

**S.** St. Anne's, Brislington; *Herb. Stephens*. Bishport; *Swete, Fl.* Field at Whitechurch, July, 1850; *Herb. Cundall*. One plant near Whitechurch, 1886; *D. Fry*. Several between Whitechurch and Woollard, 1909; *Miss Roper*. Plentiful for a few yards along ballast of the G.W.R. a mile N.W. of Keynsham, 1893 and 1894. A single plant on the embankment of Ashton Avenue, 1906. As a garden weed at Failand House! *Miss Agnes Fry*. A few in Portishead Station-yard, 1901 to 1906; and many large plants there in 1907. One at Yatton; *Miss Winter*. One by the roadside on Aller Moor near Mudgley, Aug. 1905. In some quantity in cultivations on Worlebury Hill near Weston-super-Mare, 1880. Noted at Weston by G. S. Gibson in 1843. Uphill; *W. B. Waterfall*. Banwell Hill, 1846; *Herb. St. Brody*. Roadside at Banwell, 1881; *Fl. Som.* Wick St. Lawrence, in a farm barton; *D. Fry*. Christon Hill, 1895; *Mrs. Gregory*. Easton, near Wells; *Miss Livett*. Burtle Moor, and scattered on the peat along the railway between Edington and Shapwick Stations; observed there from 1880 to the present time. Bath, 1895; *S. T. Dunn*.

**75. E. perfoliatum** Crantz. *E. orientale* R. Br. *Conringia orientalis* Dum. *Hare's Ear Hedge-Mustard*.

Alien; not permanently naturalized. It comes up with some frequency on cultivated and waste ground, and is often derived from grain-siftings.

July to September.

**G.** On a small heap of old colliery waste between Kingswood and Hanham for several years up to 1888 when I saw four plants. Pointed out to me by the late Dr. Hassé. Many other aliens grew on this heap for a while until at length it was carted away and the ground enclosed. One plant by the Old Mill at Hanham Weir, 1885; *D. Fry*. Several in St. Philip's Marsh yearly from 1888 to the present time.

**S.** Cottage garden under Leigh Wood below Rownham. Knowle, 1907; *Miss Edmonds*. Six or eight plants on silt by the Avon in Corston parish, 1895, an instance of flood-distribution; *D. Fry*. One plant at Backwell, 1903; *Miss Ruddock*. Station-yard, Portishead, on corn-mill refuse, 1902 to 1909. Clevedon; *Miss Livett*. Twerton, once or twice on tipped rubbish. Worle Station; *Fl. Som.*

[*E. repandum* L. Casual on rubbish in St. Philip's Marsh, Bristol; in plenty for several seasons. (*Journ. Bot.* 1892, p. 10.) It continued on the same spot until 1894, when the ground was enclosed and built over. One plant near the Feeder Canal, 1909.]

[*E. virgatum* Roth. A south Europe species stated by Babington in 1842 to have been at one time frequent about Bath. (*Phytol.* i, p. 310.)]

## BRASSICA Linn.

### 76. *B. oleracea* L. *Wild or Sea Cabbage.*

This is allowed a place in our list on the same grounds that secured its admission into the *Flora of Somerset*. But the old records are more or less unsatisfactory in the absence of specimens, and need confirmation.

**S.** "Berrow, Brean, and Steep Holmes"; *J. C. Collins MS.* in *New Bot. Guide*. Steep Holm, 1887; *T. B. Flower*. Brean Down; *F. A. Knight*. Neither Mr. Murray nor I saw it when on Steep Holm. Mr. H. S. Thompson says that Clark's specimen of *B. campestris* from the island has the robust habit of *oleracea*, but is certainly not that species.

I saw what I thought was an *oleracea* seedling on Severn Beach, Glouc. in 1901, and two in 1902; but all disappeared before flowering.

### 77. *B. polymorpha* Syme.

#### 1. *B. Napus* L. *Rape. Coleseed.*

Fields and waste ground merely as the remnant of a crop. Very rare. Whole plant glaucous and smooth; flowers yellow.

2. *B. campestris* L. *B. Rutabaga* DC. ? *Swede*. Flowers buff. Occurs only as a stray from cultivation.

#### 3. *B. Rapa* L. *Wild Turnip.*

Colonist; on the borders of cultivated fields and on river banks. Rather common. May to July.

**S.** This may possibly be indigenous on the banks of the rivers Chew and Avon, where it holds its own permanently, and corresponds exactly to Boswell Syme's description. As the lowest leaves soon perish it is necessary to examine specimens at more than one stage of their growth. Mr. David Fry sowed seeds of the Avon-side plant and found the progeny to have very hispid radical leaves—much rougher than those of Swede. He informs me that birds are very fond of the seeds of these plants and attack the pods at earliest maturity, so that one must be alert in order to secure a supply for experiment.

4. **VAR. *Briggsii* H. C. Watson.** This is an annual form of the last, and entirely lacks the rosette so conspicuous in a biennial. It produces very few bright grass-green lower leaves covered with bulbous hairs that soon fall. These leaves quickly decay. Flowers very bright yellow. With us this form is almost confined to waste ground near buildings where rubbish and manurial refuse are sometimes deposited. Such spots are frequent on the outskirts of Bristol, as it often becomes necessary to raise the level of marsh-lands by tipping in all kinds of waste material,—some of it highly nitrogenous and seed-laden. We have good examples of this made ground at Avonmouth, Portishead and in St. Philip's Marsh.



The plants of this group are so closely related that I have thought it best to place them under Syme's aggregate. There are few, if any, reliable characters by which they can be separated, for all are more or less inconstant. Indeed it is quite possible that the whole group sprang originally from one stock. Sufficient has been said about their distribution in the district.

[**B. elongata** Ehrh.

Alien. On an old colliery waste heap at "Holly Gess" between Kingswood and Hanham 1881 to 1891. A native of Asia Minor, probably imported with grain.]

[**B. dissecta** Boiss. Another grain alien, found by the Avon at Saltford; *D. Fry*.]

## SINAPIS Linn.

### 78. *S. nigra* L. *Black Mustard*.

Native; on river banks and the borders of cultivated fields. Frequent, especially on the banks of the river Avon; on the peat moors; and on farms in the marsh-lands skirting the Severn. Too well distributed to need the mention of any localities.

June to August.

A monstrosity of the inflorescence, induced by a minute white fungus on plants found at Aust, G., is discussed in *Journ. Bot.* IX., p. 19, by Prof. W. T. Thiselton Dyer.

### 79. *S. arvensis* L. *Brassica Sinapistrum* Boiss. *The Common Charlock*.

Native or colonist. In cornfields and about arable land generally. Very common.

June to August.

Regarded as indigenous by Hanbury and Marshall.

Tillers of the soil in all ages have been plagued with charlock as a weed infesting crops. Its pods among the linseed found in Theban tombs of the twelfth dynasty, now four thousand years old, show that it was as much a pest in the fields of the Pharaohs as in those of our own time.

The form of this species with hispid pods, common in many parts of England and not separated by British botanists, is kept up as a variety by Continental writers under the names *villosa* Mér.; and *orientalis* Murr. I have found this form plentifully in tillage fields near Westbury-on-Trym; on waste ground at St. Philip's; on the outskirts of Bath and on the southern peat moors.

### 80. *S. alba* L. *White Mustard*.

Colonist or casual with us, and infrequent. Not so common about Bristol as *S. nigra*. It occurs chiefly on cultivated land.

June to September.

**G.** Along the river-side road and railway under the Downs, from time to time. Waste ground, St. Philip's, Bristol. About the railways at Avonmouth. Hedge bottom, Upton Cheyney, 1906; *Miss Roper*. Plentiful on borders of cornfields above Wotton-under-Edge, and towards North Nibley. Also in crops on Breakheart Hill above Dursley.

**S.** Brislington and Stockwood; *Herb. Stephens*. Waste ground, Clevedon; *Miss Livett*. In many spots both by the roadside and on walls between Twerton and Englishcombe; *D. Fry*. Roadside and sand-hills at Berrow and

Burnham. Cultivated ground on Mendip near Shipham and Sidcot. Common; *Fl. Bathon.*

Earliest local record:—"Mustarde . . . it that groweth in the corne in Somersetshyre a little from Glassenberrye is much shorter than the gardine mustarde is, but nothyng behynde it in bytyng and sharpnes." *Turner, Herb. II.*, p. 137 (1562).

[*S. incana* L. Casual near Twerton, 1897; *S. T. Dunn.*]

## DIPLOTAXIS DC.

### 81. *D. tenuifolia* DC. *Fine-leaved Wall Mustard. Wall Rocket.*

Denizen; on old walls, buildings, railways and waste ground. Rare a generation ago, but now locally plentiful. July to October.

**G.** St. Philip's Marsh, Bristol; first observed there by Mr. T. B. Flower in 1841 when, as he informed me, it occurred sparingly. Mr. W. B. Waterfall tells me that he first noticed it about the works of the Avon Manure Co. on St. Philip's Marsh in 1878. Since that time the plant has greatly increased, and now covers all the waste land left unbuilt upon. Waste heaps belonging to the Netham Chemical Works, Bristol, fast spreading, 1904; *Dr. A. C. Fryer, Trans. B. Nat. Soc.* vol. X, part iii. Still on some old walls in the Hotwells. Formerly in the White Ladies Road and at Horfield; *T. B. Flower*. Shirehampton, 1890 and subsequently. Abundant on Wapping Wharf, Bristol Harbour, 1911. Scattered along the towing-path and railway under Sneyd Park and the Downs. Along the new railways at Avonmouth, and thence to the Severn Tunnel, in plenty. On both sides of the road between New Passage and Redwick.

**S.** Ashton Gate; on waste ground. On the embankment at Nailsea Station, and about an old brick-yard near by; *Miss Livett*. It appears again on the G.W.R. towards Bedminster, and continues by Pylle Hill, Totterdown and Knowle to Temple Meads. In plenty about the dock and railway at Portishead. Lately introduced in a Clevedon quarry and now abundant there, 1911; *Miss Livett*. Edge of quarry near the Suspension Bridge on the Somerset side of the Avon; *Miss Atwood* in *Swete, Fl.* About a limekiln at Keynsham, and in abundance on an embankment of the railway at Pensford; *D. Fry*. By the Avon below Bath, 1895; *S. T. Dunn*. The localities in *Fl. Bathon.* are corrected to *D. muralis* in its *Suppl.*

A very common plant in the maritime regions of W. France.

Earliest local record:—"Brassica muralis. Eruca sylvestris major vulgatiores fœtens. Wall Cabbage or Wild Rocket. Habitat in muris antiquis; circa . . . Bristol frequens." *Huds. Fl. Angl.* p. 290 (1778).

### 82. *D. muralis* DC. *Sand Mustard.*

One of the best examples of a quickly advancing colonist that does well under walls and by gravelled footpaths in the towns when it has opportunity, and would be more abundant but for the road-cleaning and tidying-up that go on constantly at the present time. June to September.



Abundant about Bristol, Clevedon, Weston-super-Mare, Uphill, Highbridge and elsewhere; preferring the coast but well known inland as far as Bath and Box. The plant is now more plentiful than it was formerly, and has greatly extended its area in the West of England. It was probably introduced into this country about the middle of the 18th century. The suggestion has been made that it was called *muralis* because it never grows on a wall. The last species is the wall-plant. We have both forms or varieties. Although the plants are chiefly annual, there may be noticed occasionally—as around the Observatory building on St. Vincent's Rocks—a fine biennial or subperennial *β. Babingtonii*, probably sometimes mistaken for the last species, but always to be distinguished by the length of the pedicels, and shape of the leaves.

### ALYSSUM Linn.

#### 83. *A. maritimum* L. *Koniga maritima* Br.

Alien; naturalized on rocks and waste places near the sea; rare and local. A stray from gardens. August to November.

**G.** Baptist Mills; *S. Freeman* in *Phytol.* I, p. 323.

**S.** Clevedon, 1833; *Herb. Clark.* Near the sea, Clevedon, July, 1852; *Herb. Cundall.* Naturalized at Clevedon in several places: Miss Livett tells me that it continues in flower there until the middle of November. Common by roadsides near the sea at Weston-super-Mare; *F. J. A. Hort* in *Phytol.* II. p. 1047 (1847). Specimen in *Herb. Lawrence* also, gathered there in 1853. Dr. Syme, in *English Botany* (1863), mentions Weston as the source of his specimens. Anchor Head, Weston super-Mare, 1879. Mrs. Gregory likewise reported it from Weston in 1886. Burnham sand-tolls, 10 mo. 10, 1859; *Thos. Clark.* I had it on those sand-hills in 1888, and Mr. A. E. Burr in 1891. Berrow Churchyard, 1911; *Mrs. Sandwith.* Naturalized on waste ground; *Fl. Bathon.*

[*A. alyssoides* L. *A. calycinum* L.

Casual. Fields near Dursley; *St. Brody* in *Journ. Bot.* 1866, p. 121. Field on the Uphill Road, Weston-super-Mare; *Id. Fl. Weston* (1856). Sandy field at Weston-super-Mare, 1886; *Mrs. Gregory.* A number of plants in a clover field on Lansdown, 1898.]

[*A. campestre* L. Casual in St. Philip's Marsh, Bristol; two plants in June, 1901, and several in 1903-4. In the Station-yard, Portishead, 1906-7.]

[*A. incanum* L. *Bertoroa incana* DC. *Farselia incana* R. Br.

A casual like the last two, introduced with foreign grain and not established anywhere.

**G.** On an old colliery waste-heap near Kingswood, Bristol, 1882 to 1885. Wapping Wharf, Bristol Harbour, 1911; *Miss Roper.*

**S.** At Portishead Dock, 1905; *Miss Peck.* Two plants on a railway bank at Congresbury, 1890. Two on Worle Hill, 1905; *Mrs. Foord-Kelcey.* Weston-super-Mare; *Mrs. Gregory*, 1890.]

### DRABA Linn.

#### 84. *D. muralis* L. *Wall Willow-grass.*

Native; on rocks and walls. A limestone plant, practically confined to the south-east of the district, and so quite local. April and May.

[**G.** Quarry in Morgrove Paddock, between Henbury and Lawrence Weston, for many years; *Miss Powell*. Specimens in her herbarium were dated March, 1834; and April, 1843. The name of the spot is spelt "Musgrove" in the report of a visit by the Bath Antiq. and Field Club in 1856. I do not know that the plant has been seen there since 1879, and now understand that the quarry has been filled up. *D. muralis* is therefore lost to the county. But it cannot be thought probable that the plant was indigenous in such a situation, many miles from an undoubted native locality.]

**S.** Abundant on old walls at Ston Easton, Rush Hill, and Farrington Gurney. Temple Cloud; *L. W. Rogers*. I have also seen it between Mells and Great Elm. Besides those stations, the following are given in *Fl. Som.*; West Horrington, near Wells; Binegar; Chilcompton; Downhead and Midsomer Norton. Walls at Shepton Mallet, 1897; probably outside the district; *H. S. Thompson*. Formerly on walls at Old Down, Bath; *T. B. Flower* in *Fl. Bathon. Suppl.* East Harptree Combe; *Rutter, Hist.* (1829).

[**D. aizoides** *L.*

Alien; on an old wall at Swainswick, Bath, for many years; *Dr. Harper*. No doubt planted.]

**85. D. verna** *L. Erophila* DC. *Common Willow-grass.*

Native; on walls, banks and dry rocky places, as on Clifton and Durdham Downs; very common. February to April.

**86. D. brachycarpa** *Jord. E. præcox* DC.

Native; in similar situations to the last, but not so common. There is an abundance of small specimens on the Downs; Penpole Point; Cadbury Camp; and Berrow sand-hills; in spots where the sward is very thin about exposed rock or behind dunes. Much finer plants are to be found on rocks and walls about Worle Hill; Uphill; Woodspring; Banwell; Chewton Mendip; Cheddar; Priddy; Farrington Gurney; and Ston Easton.

The broad rounded pods of this species well distinguish it from *D. verna*. First local record:—the author in *Bot. Exch. Club Report*, 1888.

Many of the seventy species of *Erophila* described by Mons. Jordan are probably confined to the Continent. Certainly some specimens forwarded to me from Central Europe are unlike any I have met with at home. But very little has yet been done towards the critical study of these plants in Britain. It is said that the various forms do not mingle very much. As a rule only two or three will be found in any one district,—others in other parts of the country.

**COCHLEARIA** *Linn.*

**87. C. officinalis** *L. Common Scurvy-grass. Spoonwort.*

Native; on and under limestone rocks, generally by the Channel, more rarely inland. Very local. May and June.

**S.** Weston-super-Mare; very luxuriant in and about the wood towards Birnbeck. Formerly on Birnbeck Island; *T. F. Perkins*. On the beach in Kewstoke Bay, 1896. Rocks towards the extremity of Sand Point (Swallow Cliffs), on the north side, in plenty; and sparingly on a low cliff a little way inland but facing the sea, near St. Thomas' Head. Brean Down! *W. B. Waterfall*. Abundant in the gorge at Cheddar, about the base of the cliffs.



**88. *C. danica* L.** *Danish Scurvy-grass.*

Native; on the shores of the Bristol Channel; rare and local. March to May.

**G.** New Passage; reported to me in 1878 by the late Prof. Leipner, F.Z.S. I doubt much if the plant now exists in Gloucestershire: it has been searched for in vain from Aust to Avonmouth.

**S.** Rocks near the Kewstoke Road; *St. Brody, Fl. Weston* (1856). Anchor Head, Weston-super-Mare, 1880; *T. F. Perkins*. It was abundant in the gravel about Knightstone Baths in 1898. In plenty at the end of Sand Point (Swallow Cliffs), and in less quantity at another spot on the other side of Kewstoke Bay! *Mrs. Gregory*. In May, 1896 Mr. D. Fry and I explored Sand Point, and found the plant fruiting towards the seaward end on the northern side, where it extended in turf—not on bare rock—perhaps thirty yards. Rocks at the extremity of Brean Down.

A specimen from Flat Holm is in the British Museum Herbarium.

**89. *C. anglica* L.** *English Scurvy-grass.*

Native; on mud-flats, salt marshes and the banks of tidal inlets at about high-water mark; often submerged in spring tides, but invariably shunning exposure to wind and spray. April to June.

**G.** Shore of the Severn above and below the Passages. Plentiful on the muddy banks of the New Cut and Avon, above and below Bristol. River banks at the Hotwells, Bristol; and near Kingsweston; *Withering*, iii, p. 574.

**S.** Bank of the Avon near St. Anne's Ferry, now above tidal influence; and below Bristol. Ditchbanks in Portbury marshes. Clevedon, 1897, a few plants on the shore towards the west end of the front; and lower down at Salthouse as well as outside the sea-bank near the rifle butts; *D. Fry*. Under Brean Down, 1836; *Herb. Clark*.

The Bristol plant differs from that figured in *English Botany*, and some botanists have thought it to go best under var. *Hortii*. The status of the variety is, however, questionable. The pods are shorter and broader, with turgid valves, very much constricted at the replum. I have never found the leaves to be cordate, nor met with specimens such as are described by Mr. Briggs in his *Flora of Plymouth* as being intermediate between this species and *C. officinalis*. With us the flowers of the latter are barely one-third the size of those of *C. anglica*.

Earliest local record:—"Cochlearia Anglica Atriplicis folia . . . etiamque in Bristoiæ sinu Occidui Oceani, quò allidunt per stata incrementa undæ."—*Lobel. Adv.* p. 122 (1570). Noticed also in its Bristol stations, under the name of *Cochlearia britannica*, by Gerard; *Historie of Plants*, published 1597.

**ARMORACIA** Gaertn.**90. *A. rusticana* G. M. and S.** *Horse-radish.*

Alien; though in some spots it has the appearance of a native. The late W. W. Stoddart considered it to be indigenous on the banks of the Avon,

where it is very abundant between Crew's Hole and Keynsham. Wherever planted it establishes itself tenaciously, and thus is often seen in deserted garden-plots and home closes, the uneradicable survivor of ancient cultivation.

May, June.

Too common throughout the district to need the detail of specified localities. I cannot remember ever to have seen good fruit in this country.

**91. A. amphibia** *Peterm.* *Great Yellow-cress.* *Great Water Rocket.*  
*Great Water-radish.*

Native; on the banks of rivers and ditches; rare and local.

June to September.

**G.** Shirehampton marshes, towards Avonmouth; where I have seen it repeatedly in former years, but fear it will not again be found. Riverside, Conham; *Herb. Cundall*. Still there on the Glouc. bank of the river.

**S.** St. Anne's Wood, in the marsh; *Thwaites* in *Swete, Fl.* and in *Herb. Watson*. Reported thence also by *W. E. Green*. Abundant at intervals on both sides of the Avon above Saltford; very fine and plentiful near Newton Bridge; *D. Fry*. In a wet ditch by the roadside between Sandford and Churchill, extending only about three yards. In ditches near Brean, sparingly; *D. Fry*. Bathampton and Bathford, 1887. Warleigh Ferry, in plenty. Canal-sides, Claverton.

### CAMELINA *Crantz.*

**92. C. sativa** *Crantz.* *Gold-of-pleasure.*

Alien; not naturalized, occurring rarely on cultivated and waste ground.

July, August.

**G.** On the waste-tips in St. Philip's Marsh, Bristol: a few plants at intervals from 1887 onwards. Some fine ones there in 1909. The old colliery heap at Holly Gess, Kingswood, 1880-1882. On dredgings from the Avon tipped into the Black Rock Quarry, 1884-1886.

**S.** One plant on rubbish at Failand, 1911; *Miss Agnes Fry*. On the railway-sidings at Portishead, 1907 and 1909. Casual at Twerton; *S. T. Dunn*. Waste ground at Weston by Bath; *Rev. L. Jenyns Blomefield*. On the old Junction railway, Weston-super-Mare; *Mrs. Gregory*. One plant by the Avon at Corston; *D. Fry*.

[*C. sylvestris* *Wallr.*

Casual like the last at St. Philip's, Bristol, 1902 to 1908. On a rubbish-tip near St. Anne's, Bristol, 1905; *C. Wall.*]

### THLASPI *Linn.*

**93. T. arvense** *L.* *Penny Cress.*

Colonist; on waste heaps, cultivated land and about farm buildings. Not so rare as it was formerly considered to be; but very thinly distributed, occurring as a rule in but small quantity.

May to July.



**G.** Edge of field, Stoke Druid, 1909; *Miss Roper*. Several plants in St. Philip's Marsh, 1901 to 1909. On dredgings tipped into the Black Rock Quarry, 1883 and 1884. Baptist Mills, 1911. Glen Frome, Stapleton; and Wyck; *T. B. Flower*. Formerly in cornfields about Horfield, for several years; but not seen of late. Mangotsfield, 1906; *Miss Jacques*. By the Gas Works, Stapleton Road, 1911.

**S.** Eastwood, Brislington; *Herb. Stephens*. One fine specimen on waste ground at Ashton Gate, 1907. A good quantity in an old lane at Keynsham, 1901; and fairly constant on cultivated land between Saltford and Burnet, 1902 to 1905; *D. Fry*. One plant by the Avon at Newton Bridge, 1886. Twerton; *S. T. Dunn*. Three or four dozen in the corner of a pasture between Whitchurch and Queen Charlton, and a few on a roadside heap between the latter village and Woollard, July, 1905. Still in both places, 1906. Two plants at Clevedon, 1902. In a field by the road from Chew Stoke to Dundry; and abundant among swedes under Stantonbury Hill; *D. Fry*. One in an oatfield at the back of Dundry Hill in 1887. On corn-mill refuse etc. in Portishead Station-yard, five or six plants annually from 1900 to 1908. Temple Cloud; *T. B. Flower*. Garden weed at Wells; *Miss Livett*. No mention in *Fl. Bathon*.

This was thought to be probably a native plant by Alphonse de Candolle; but Dunn includes it in his *Alien Flora*, and says that Central Asia may be regarded as the home from which it has spread.

"The name Penny Cress was expressive when silver pennies were in common use; but it is scarcely understood now."—*Rev. W. Newbould*; quoted from the *Flora of Herefordshire*.

[**T. perfoliatum** L. There are two old and unconfirmed records for this rare species at Bristol. According to T. B. Flower it was reported from St. Vincent's Rocks by Mr. Salisbury when he was lecturing in Bristol many years ago; and Dr. H. O. Stephens notes it from Montpelier and Ashley in his *Catalogue*, 1835. Possibly these were mistakes. Had there been but one record instead of two we might have considered that an error had certainly been made in entering this species, rather than that it did occur and is now lost. It grows in Gloucestershire, north of our district.]

#### 94. **T. alpestre** L.

Native; on upland limestone pastures of the Mendip Hills, scattered more or less plentifully over several square miles: from Sandford Hill by way of Sidcot, Winterhead and Star Common, along Shipham Bottom and under Rowberrow to the flanks of Blackdown. It occurs again at Charterhouse, whence Miss Roper has specimens.

April to June.

As pointed out by the author of *Fl. Som.* the plant is fond of growing on old ant-hills, and on the mossy sides of ancient mining pits which often cover the rocky surface of the hills. The latter situation produces the finest specimens.

Until lately I had given to this Mendip plant the varietal name of *occitanum* Jord.; and the Rev. R. P. Murray did likewise. But recently Mr. Bucknall and I have compared our examples very carefully with the descriptions and figures given by Jordan in his *Diagnoses* and in the *Observations*. We find, in the first place, that Jordan's name was *occitanicum*, not "*occitanum*" as written in our books. With this segregate our plant agrees fairly well in characters derived from the capsule, including the number of seeds; and in its

occasionally branched stem. But the *occitanicum* differs widely in having very glaucous leaves, more or less dentate; and a biennial root, "vraiment pivotante." The Mendip plant is not glaucous; its leaves very seldom show any toothing; and the root is distinctly perennial, tufted, now and then producing stolons six inches or so in length carrying several rosettes of leaves and a corresponding number of flowering stems. In some respects Jordan's *T. gaudinianum* is really the nearer, but that is said to have only a sub-cæspitose root at most. Not one of Jordan's segregates, in fact, accords with our own form which, therefore, had perhaps better be left under the aggregate *T. alpestre*.

### HUTCHINSIA R. Br.

#### 95. *H. petræa* R. Br. *Rock Hutchinsia*.

Native; on limestone rocks about Bristol, and rarely upon walls; very local. March, April.

**G.** Rocks and screes of Clifton and Durdham Downs from the Suspension Bridge to the Sea Walls. Rocks by Cook's Folly, 1855; *Herb. Cundall*. "Old wall of farm-yard adjoining the Pound, Westbury-on-Trym, 17 Feb. 1834; also on the side of Kingsweston Hill, near the seat."—*Herb. Powell*. "Observed *Lepidium petræum* in great abundance on a wall on the Left hand side of the Road in Westbury Town . . . Nearer the River side, *Lepidium petræum* among the Rubbish."—*Journal of Sir Joseph Banks*, 26 May, 1767. "On the Rocks above the Wells";—*Banks and Lightfoot*, 25 June, 1773. About 1880 the plant grew luxuriantly on a wall at Eastfield, near the Manor House; but was entirely destroyed by repairs and repointing. It never reappeared. I have seen, from time to time, a very few specimens on roadside rock between Westbury and Brentry. Some were still there in 1909.

There is curious topographical confusion in the earliest record for Britain (1690), by Ray;—*Syn.* ed. I, p. 236. "*Nasturtium montanum annuum tenuissime divisum* . . . brought me [Bobart] by Richard Kayle from S. Vincent's Rock near Goram's Chair in the parish of Henbury three miles from Bristol." A doubt might well be entertained if the record really referred to Blaize Castle, had not Sherard made it clear; and Mr. Flower told me he had *Hutchinsia* there in 1840. I could not find it on Goram's Chair in 1907, and I understand that none has been seen there lately.

**S.** On limestone under Leigh Woods; *H. S. Thompson* in *Fl. Som.* The plant is exceedingly rare on the Leigh side of the Avon. "*Lepidium petræum*; Woods on rocks facing Hotwells, and at Uphill and Worle";—*Sole* in *Collinson's History*. "In rupe St. Vincent's Rock dicto et muris circa Bristol, passim; ad Uphill in agro Somersetsiensi";—*Hudson, Fl. Angl.* ed. III, p. 280. Cheddar; *J. C. Collins* in *New Bot. Guide*.

No confirmation can be had of the statements referring to Uphill, Worle and Cheddar. Mr. David Fry and I have searched the most likely spots in vain.



**[*Teesdalia nudicaulis* R. Br.**

Mr. John Lloyd (*Phytol.* N.S. Oct. 1857) stated that in June, 1856 he had found this plant in seed at Cheddar. The writer seems to have been a well-informed botanist; he frequently appeared in print as a "valued correspondent"; and this is the only suspicious item in his account of a three days' excursion in the Bristol district. But close and repeated search made of late years for the plant at Cheddar has met with no success.]

**[*Iberis amara* L. *Bitter Candytuft*.**

Alien; always a stray from gardens or introduced with seed in this district.  
Cornfield, Dugar (near Bishopston), 25 June, 1850; *Herb. Cundall*. This locality has long been built over. Railway-sidings at Fox's Wood Quarries, 1894. Portishead Station-yard, July, 1904. On the Anchor Head rocks at Weston-super-Mare, July, 1881; doubtless derived from a garden above.]

**LEPIDIDIUM Linn.****96. L. *Draba* L.**

Alien; introduced at Bristol during the last century. It holds its ground tenaciously, and spreads along railways and by roadsides with increasing frequency. One fears that in time, by extension into cultivated land, this plant may become here the agricultural pest it already is in the south of France. Prior to 1843 it was known in only three English counties (*Phytol.* I, pp. 679, 680), so that at the time when it was first noticed at Bristol it must have been a very rare plant. In the *Stephens Herbarium* Dr. S. writes his fear or belief that the plant had been built out of St. Philip's Marsh, thus making it clear that he had known it there earlier than 1846, the date of his memorandum. Swete, *Fl. Brist.* p. 101 (1854), includes it in a list of species reported as growing in the district but requiring additional confirmation. June and July.

There is no reference to *L. Draba* in *Fl. Bathon.* pub. 1834.

**G.** Cornfields at Stapleton, 1846; *Herb. Stephens*. Still there, under a fence, in 1882. Waste ground and railway banks in St. Philip's Marsh, now abundant in a good many spots. Field under Cook's Folly, Sneyd Park, 1900 to 1910. Railway banks both at Fishponds and Mangotsfield Stations. Bitton 1907; *Miss Roper*. Roadside between Patchway and the Gloucester Road, 1881 to 1905. Almondsbury Green; *C. Bucknall*. By Avonmouth Docks, 1910. Two or three patches by the new line between Avonmouth and New Passage; *C. Wall*. Yate and Wickwar; *V. R. Perkins*.

**S.** About some old iron-works at Ashton Gate. Failand; *D. Williams*. By the roadside at Portishead. This entry, communicated by Mr. Fry, is the only record for the county in *Fl. Som.* published 1896. In the Station-yard, Portishead, 1900 to 1909. Thoroughly established by the side of a footpath under a wall on the Kenn Road, not far from Clevedon Station; *D. Fry*. In an exactly similar position between Keynsham and Saltford, 1886 to 1896. Walton-by-Clevedon, and Tickenham; *Miss Livett*. By Congresbury and Cheddar railway stations. Sham Castle Lane, Bath; and abundant on railway-banks between Bath and Twerton; *A. E. Burr*. Twerton; *S. T. Dunn*.

Earliest local record:—Near Bristol, 1828; *W. Christy* in *Herb. Watson*.

**97. L. *campestre* R. Br. *Field Pepperwort*.**

Native; by roadsides, on cultivated ground and bushy field borders; rather common and well distributed. June and July.

**G.** Tillage fields about Filton, Patchway, Charlton and Brentry. In the lowland cornfields between Lawrence Weston and the Passages. Stapleton, Hambrook, Stoke Gifford, Iron Acton, Cromhall and Berkeley. Roadside and railway under the Downs. Banks by the new railway near Hallen and Henbury, abundant in 1910.

**S.** Borders of fields near Long Ashton. West Town. Abundant in ploughed land near Portbury, and towards Easton-in-Gordano. Chelvey and Clevedon; *Miss Livett*. Weston-super-Mare, Congresbury, Cheddar and Wells. Odd Down, Hampton Down, and Bathampton near Bath.

These lists of localities might be considerably extended.

*L. campestre* in many of its localities looks like a colonist or weed of cultivation. But on Walton Down, overlooking the Channel between Clevedon and Portishead, it is conspicuous among the furze and brambles of the hillside, and is certainly indigenous. Passers-by might think on noticing it that all the Pepperwort along that route would be the same, and so miss the *L. Smithii* which is there also in smaller quantity.

**98. *L. heterophyllum* Benth.** *L. Smithii* Hooker. *Smooth* or *Smith's Pepperwort*.

Native; on dry banks and uplands; practically confined to the Old Red Sandstone and Coal Measure Grit. Rare and local. June and July.

**G.** Ivory Hill near Frampton Cotterell; plentiful for some yards on both sides of a cart track. About a dozen plants in a furzy field a short distance north of Yate Station. Yate Common; in small quantity, 1909. "Near Bristol."—*Worsley Cat.* in *New Bot. G.* (1837). On the roadside going from Shirehampton to the Lighthouse; *T. B. Flower*. Gathered there also by the late Miss Powell of Henbury. Her specimen was dated June, 1842. By the railway north of Avonmouth, 1905; *C. Wall*.

**S.** Formerly in a field on Failand Farm; now lost; *D. Williams*. On the beach, Portishead, 1852; *J. N. Duck*. Two plants on a wall near Portishead Church, June, 1889; *J. F. Hopkins*. One by the roadside near Nailsea, May, 1905; *J. W. Eves*. One at Clevedon on two occasions; *Miss Ruddock*. Along the edge of low cliffs on the coast north of Clevedon, scattered here and there in fair quantity! *Miss Livett*. A few plants at Uphill, 1888! *H. S. Thompson*. Casual on mill-refuse at Henley near Wells; *Miss Livett*. One plant at Midsomer Norton, 1882; *Fl. Som.* Temple Cloud; *T. B. Flower* in *Fl. Bathon. Suppl.*

The Ivory Hill plant, having scaly pouches and a habit corresponding to the description of *L. campestre* var. *longistylum* More (*Bab. Man.* ed. IX), was published under that name in *Journ. Bot.* Jan. 1910, and correction made in a subsequent number. I owe the detection of the error to Dr. Thellung of Zürich, monographer of the genus *Lepidium*. He questioned the existence of such a *campestre* form as More's *longistylum*, and suspected that my plant was really *heterophyllum*, which it proved to be.

Subsequent inquiry in many quarters, the British Museum and Cambridge



Univ. Herbaria included, failed to discover a specimen of More's variety, and it seems that the only example extant is that from Co. Armagh, in his own collection preserved at Dublin. This proved to be a *campestre* form with style slightly longer than customary, but of no importance as a variety. On seeing it Dr. Thellung reported that it was a not uncommon state of the species.

The above relation shows that much reliance should not be placed on the characters "pouch scaly" and "pouch smooth" in separating the two species *campestre* and *heterophyllum*. There are other more substantial points of difference. Mr. S. T. Dunn drew attention to this matter in *Journ. Bot.* 1896, p. 477. The pods of *L. Smithii* were described by Smith as "entirely destitute of the minute concave scales so characteristic of *L. campestre* Br."; and plants thus destitute must of course be regarded as typical. But they are rare, for Mr. Dunn found that in the prevailing British form—the only one in most districts—the pods are more or less rough with papillæ, usually smaller but often not less numerous than those of *L. campestre*. To this rough-pouched form Mr. Dunn gave the name var. *papillosum*. The fruit of our plants is minutely, but distinctly, scaly or papillose, and in the fresh state the papillæ are more prominent than when dry; but Dr. Thellung reported on specimens forwarded to him that in his opinion they should go to his var. *leiocarpum* (*Monogr.* 1906, p. 99) "*silicula lævis vel minutissime papillosa*" (type?), rather than to the var. *papillosum* Dunn, l.c. p. 100, "*silicula papillis squamiformibus concavis distinctis*."

[*L. sativum* L., the *Common Garden Cress*, is found sometimes on waste heaps and road-side rubbish near kitchen gardens, but scarcely deserves mention. It is always an outcast, and does not propagate itself spontaneously.]

[*L. perfoliatum* L., an alien from Eastern Europe derived from imported grain, occurs from time to time. Sparingly on city refuse at St. Philip's, Bristol; July, 1902 and again in 1909. With other aliens near Twerton, Aug. 1903; *Miss Peck*. Several plants in Portishead Station-yard; 1906.]

### 99. *L. ruderale* L. *Narrow-leaved Pepperwort*.

Denizen or alien; often a casual inland. Although perhaps it might be indigenous in the Avon valley where it has a lengthy history, its appearance to my eyes is never quite that of a native plant.

About the docks and quays near Bristol, and generally within scent of salt water. Local and persistent. May to July.

**G.** Formerly on the gravelled quays at Cumberland Basin, at a time when a few weeds were permitted to grow between the locks. "Almost everywhere about Bristol"; *Bot. Guide*, pub. 1805. Riverside, Cook's Folly, June, 1839; *Herb. Flower*. Noticed there by Sir Joseph Banks in May, 1767, and has continued by the tow-path to the present day. Along the riverside for a short distance above Sea Mills Station, 1900 to 1909. It has been known there since about 1835; and was recorded by both Mr. Flower and Miss Powell. A good number of plants just below the Ferry at the Lamplighters, 1893 to the present time; and near the old lead-works half a mile or so lower down, latterly in enormous quantity. Near Kingsweston, below Bristol, 1796; *Withering*. In great plenty about Avonmouth Docks, 1900 to 1910. St. Philip's Marsh, by the Avonside brick-yards, in varying quantity every year

from 1881. And Dr. Stephens had it there many years before. Crew's Hole; *Swete, Fl. and Stephens in Herb. Br. Mus.* In a hollow near the Warmley end of Siston Common, constant; and by the old tramway at Bitton; *D. Fry.* For some yards on a wall in Snowdon Road, Fishponds, 1907-8. A few plants under a wall by Nibley Mill near Yate, 1910. Bank of the Pill at Berkeley; *Miss Roper.*

**S.** Roadsides and waste ground at Ashton Gate. By the Avon at Rownham Ferry, and lower down under Leigh Woods. Abundant in a salt-marsh by the river below Pill, 1909; *Misses Cundall.* On ballast at St. Anne's, Brislington, 1905; *Miss Roper.* Clevedon; *W. E. Green.* Walton-by-Clevedon, 1904-5-6, until the spot was built on; *Miss Livett.* Since then it has reappeared in another place. About Portishead Dock and Station, 1900 to 1909. On the beach, Weston-super-Mare; *Mrs. Gregory.* Near the Brue by Highbridge; *H. S. Thompson.* Waste ground by the Avon below Bath, 1900. Bathampton Station, 1905; *Miss Peck.*

First local record:—St. Vincent's Rocks, 1726; *Herb. Dillenius.*

When the alluvial soil on the banks of our tidal Avon is disturbed, and a new surface left, a fine crop of this species is usually found among the first vegetation that springs up. Some of the plants are often of great size, and these shed such an abundance of seed that by the end of October, in a mild season, the clay surrounding the withered parents is covered by a green carpet composed of thousands of seedlings, many of which have passed the cotyledonary stage. It is hard to say why so few of these survive. Only two or three can do so, for the plant always grows thinly—never in dense beds. It may be, of course, that this autumnal growth is entirely destroyed by the winter's frost, and that the plant is perpetuated by seeds that do not germinate until the spring.

# **100. *L. latifolium* L. Broad-leaved Pepperwort. *Dittander.***

Denizen? Probably introduced in some, if not in all, of its stations. Very rare. July to September.

**G.** Several large patches on made ground in St. Philip's Marsh, 1900 to 1911. One plant near Sea Mills, 1911! *W. Batt.* In plenty on the riverbank at Berkeley, near the bottom of the town! *Miss Roper.* Father Reader tells me that it also grows higher up the Severn valley, at Westbury-on-Severn, outside the district.

**S.** "Near Berrow, on the east side of the road to Burnham," 1860; *Herb. Clark.* Specimens gathered at the same place, and in the same year, are in the Flower Herbarium. Mr. Flower owned to me that this was the only N. Somerset locality known to him, and that his published definition, "Near the Axe, between Brean Down and Brean," was intentionally vague and wide of the mark. I do not myself consider that any harm can be done by giving a closer description of the habitat, which extends about fifty yards along a high bank. The plant still flourishes, and is safe enough until, as will happen one day, the place is built over.



The species strikes one as an unlikely stray or casual. In its original condition the Avon bank at St. Philip's Marsh would have been an unsuspected locality for it. Can it be that this, with the clump of *Carex divisa* that exists hard by, has been derived from indigenous plants formerly growing near the tidal river a few yards off? There are, unfortunately, no old records to give substance to such a supposition; and I fear we must conclude that both have been brought to the spot with city rubbish that for years has been tipped to raise the marsh-land level. Dittander certainly was once widely grown in gardens, and its long creeping root renders it capable of surviving if thrown out into loose soil.

### BURSA Weber.

#### 101. *B. pastoris* Weber. *Capsella* Vent. *Shepherd's Purse*.

Native. A common weed, found everywhere by roadsides and in cultivated ground. March to October.

As every one knows, this weed is most variable in habit, shape and toothing of the leaves, and form of capsule. Ten named varieties are given in Druce's *List of British Plants*. Of these, five owe their recognition to the ideas of Mr. F. A. Mott, who has described his types in the *Flora of Leicestershire* and in the *Midland Naturalist*, August, 1885. But the great majority of examples that we see about us are mixed forms that cannot be referred to either variety. A plant with nearly entire leaves and very large capsules that had for some years attracted my attention at Kingsweston, G. and which came true from seed, was reported on by Mr. Mott as follows:—"I should place this *Capsella* with *brachycarpa* rather than with *bifida*. The equilateral capsules are typical of *brachycarpa*, and although the radical leaves approach those of *bifida*, they are too small for that form, though more entire than is usually found in *brachycarpa*."

### SENEBIERA Pers.

#### 102. *S. Coronopus* Poiret. *Coronopus Ruellii* All. *Swine's Cress*. *Common Wart Cress*.

Native; on roadsides, waste ground and the borders of tillage fields. Rather rare. May to September.

G. "Pathway to Dugar; and Horfield Lane," 1849 to 1851; *J. H. Cundall*. Near the mouth of the Trym at Sea Mills, where coal was formerly landed. Warmley; *Miss Roper*. Borders of arable land in several places between Patchway and Thornbury. In like spots between Wapley and Codrington.

S. About Rownham Ferry; *Swete, Fl.* Roadside at Saltford, and as a weed in gardens at Corston; also at Winscombe, Cheddar and Clevedon; *D. Fry*. Wrington. Yatton; *Miss Livett*. Frequent about Frome; *H. F. Parsons*. By no means common at Bath; *Rev. L. Jenyns Blomefield*.

#### 103. *S. pinnatifida* DC. *S. didyma* Pers. *Lesser Wart Cress*.

Alien or colonist. Supposed to have been introduced from the New World

with ships' ballast about the middle of the eighteenth century, and so to have become well distributed in the neighbourhood of our seaports on both sides of the Bristol Channel.

The strong cress-like smell betrays its presence some yards away. Locally frequent. June to August.

**G.** Abundant in some years by the tow-path and railway station at Sea Mills: noted there by Mr. Flower seventy years ago. It occurs also by the river and railway between Shirehampton and Avonmouth. Westbury-on-Trym; *E. Wheeler*. Abundant about Kingswood, 1856; *Phytol. N.S.* Kingswood and Crew's Hole; *Swete, Fl.* Plentiful under walls at Staple Hill, 1884, and subsequently. Among crops between Fishponds and the Frome, 1910. Kingsweston Down. By the roadside between Stapleton and Frenchay, 1885 to 1905; and on Frenchay Common. Under walls N. of Downend, and at Moorend. Abundant about Siston Common, 1896 to 1900. Hanham; *D. Fry*. Stoke Bishop, Conham and Fishponds; *Miss Roper*.

**S.** Rownham, Ashton Gate and Bedminster, on many occasions. Failand; *D. Williams*. Along the railway near Portishead Station, 1900 to 1907. Clevedon. Weston-super-Mare. Uphill, 1886. Burnham, permanent. Along the riverside near the Gas Works, Bath, from 1886 onward; *A. E. Burr* and *D. Fry*. Noted from the riverside at Bath in *Fl. Bathon*. On the railway near Edington Junction; *Dr. C. E. Moss*.

[*Isatis tinctoria* *L. Woad*. Formerly in cultivation near Wotton-under-Edge, and is still sometimes met with by the mill at Wickwar; *V. R. Perkins*. Cultivated about Keynsham, Somerset; *Swayne* in *Withering*, 1796. A writer in *Nature*, some years ago, mentioned that *Isatis* was formerly cultivated at Mells near Frome; where the grower was known as the "Woad-man." Casual at Weston-super-Mare, 1906; *Rev. S. Laing*.

"*Isatis tinctoria* was certainly cultivated formerly at Saltford. A field in which it was grown is called 'Woad Range,' in reference to the block or range of buildings—still standing—in which the woad was prepared for market. This I learnt from C. Withers of Saltford, who told me that he had often heard his father say that the plant was grown, and the dye-stuff made from it, at the Woad Range."—*D. Fry*.

The late Mr. Flower told me that he had found a plant or two once or twice about Keynsham, where no doubt its early cultivation led to its occasional appearance in apparently a spontaneous state. Such a species might be expected to spring up sometimes on the site of a former woad-crop when the ground is newly turned. Disturbance of the soil might bring deeply buried seeds to the surface and give them a chance of germinating.

Woad seems to have been grown extensively in Britain until about a century ago, as many tons of it could be supplied to dyers so long as they continued to require it. But its use, although still continuing in our eastern counties, has long since been abandoned in the West of England.

Pliny the Elder (*Hist. Delphin* Edition, 22.2) writes that British women dyed themselves with *Glastum*. *Glastys* was the Celtic name for both Woad and Dyer's Green-weed. William of Malmesbury tells us that the old name for Glastonbury was *Ines Vitrin*, i.e., the Isle of Vitrin or Woad, the dye probably used to colour textile fabrics made at an early date in the lake village near Glastonbury, as well as to stain the faces of the inhabitants. Clothes must always have been worn in such a climate as ours. Hence, whether we take the Latin name for Glastonbury or the Celtic one, we get the same meaning—an Island or Hill on which Woad grows: Woad-Isle or Woad-Hill.\*

Parkinson (*Theatr. Bot.* p. 601) says "Woade . . . some have sowed it in our owne land, but they have found it to be the cause of the destruction of their Bees; for it hath been observed that they have dyed as it were of a Flix that have tasted thereof."

[*Neslia paniculata* *Desv.* A common Continental weed which appears among colonies of corn-introduced plants from the East. Casual at St. Philip's, Bristol, in varying number from 1903 to 1908. On mill-refuse at Portishead, 1905, *Miss Peck*; and in 1906.]

[*Myagrum perfoliatum* *L.* In the same category as the last. Casual at St. Philip's, 1904.]

[*Bunias orientalis* *L.* Mr. Dunn, in his *Alien Flora*, says this is a native of meadows in South-East Europe, and has shown signs of rapid extension of late years. It occurred in several spots by the Great Western and Midland railways between Bristol and Bath, 1899 and 1900; *C. Withers* and *D. Fry*. A large plant near Saltford, June, 1901; and one still there in 1904.]

\* Somerset and Dorset Notes and Queries, 1897, p. 234.



**CAKILE** *Mill.***104. C. maritima** *Scop. Purple Sea-Rocket.*

Native; on sea sands of the Channel coast between Clevedon and Burnham, most plentiful in the least frequented places. It occurs usually as a fringe along the foreshore at high-water mark, on the line of dead seaweed and cast-up débris. June and July.

In July 1910 a single plant was found by Mr. J. H. Priestley, F.L.S. on the Severn shore below New Passage, and this appears to be the only existing evidence of the occurrence of the Sea-Rocket in our Gloucestershire division. Mr. Priestley's specimen may have been sporadic; derived from seed brought by wind or water from another part of the coast. Or it may have sprung from a seed shed at the spot long years before and which had lain dormant, in the unexplained and remarkable way that is not infrequent with *Cruciferae*.

The flowers vary from white to deep pink or purple. The leaves, too, vary in outline. When nearly entire they constitute the var. *integrifolia* Koch. But I agree with the Rev. E. S. Marshall and Mr. Claridge Druce, who point out that an older and better name is *sinuatifolia* DC., *Prodromus* I. p. 185 (1824). Koch quotes this as identical, so it is not clear why he made a new name. Good examples of the variety—such as it is, hardly worth distinguishing—grow on Brean sands, and along the shore nearer Weston-super-Mare.

**CRAMBE** *Linn.***C. maritima** *L. Sea-Kale.*

Native; formerly on the sea coast. Now extinct. June and July.

**S.** Sea wall, Burnham; *Herb. Clark*. Burnham, on the coast near the church; *J. C. Collins* in *N. B. Guide Suppl.* "Seen also at a later date by Mr. T. B. Flower"; *Fl. Som.* But there is no Somerset specimen in his herbarium. The probability is that the plant has been extinct for very many years. It is such a conspicuous species that it could not be overlooked.

**[RAPISTRUM Boerh.]**

**[Rapistrum perenne Allioni.** Casual at St. Philip's Marsh, Bristol, 1902. Twerton-on-Avon, 1897; *S. T. Dunn.*]

**[R. orientale** DC. Waste ground by Portishead Dock, 1909! *Miss Roper.*]

**[R. rugosum Bergeret.** An eastern barley-alien. Casual with *R. perenne* at St. Philip's, 1902; and quite twenty plants there in July, 1904. Twerton, 1897; *Herb. Dunn.* Old lias quarry near Twerton, 1902! By Portishead Dock, 1908! *Miss Roper.*]

**[R. Linnæanum Boiss.**

Casual. Plentiful in St. Philip's Marsh, Bristol, 1907 to 1910. Twerton, 1897; *Herb. Dunn.* The relation between *R. rugosum* and *R. Linnæanum* is close enough to make distinction between them a little difficult. The chief point of separation lies with the lower silicle-joint, which in the latter plant is cylindric and thinner than the pedicel; while in the former this joint should be swollen, narrowly oval, and thicker than its pedicel. When the single ovule of the joint, however, is infertile, as sometimes happens, the cell fails to expand and the student may thus be misled.]

**RAPHANUS** *Linn.***105. R. Raphanistrum** *L. Jointed Charlock. Wild Radish.*

Colonist; in cornfields etc., frequent. Sometimes with lilac flowers.

June and July.

"The repetition of a generic name with the addition of 'istrum' or 'astrum' applied to a species, indicates that it is a useless or contemptible member of that genus, or bears a false resemblance to the species which comprise it." *Syme's E.B.*

**106. *R. maritimus* Sm. *Sea-Radish*.**

Native; near the coast. Very rare.

June to August.

**G.** About a dozen fine plants at the north end of the Black Rock Quarry, July, 1889. I think I must have overlooked its occurrence in previous years, as I remember seeing a large crucifer there and disregarding it. Some there also in 1890 and 1891, when the plant died out, unfortunately. For this is the first and only record for the county of Gloucester.

**S.** On the Battery Point, Portishead; *Duck*. Portishead; *Rev. W. W. Spicer* in *Herb. B. Nat. Soc.* Four plants observed on the shingle in Woodhill Bay, Portishead, at long intervals apart, between the Battery Point and the "Burnt Hotel," confirming *Duck's* and *Spicer's* records, August, 1886; *D. Fry*. I saw one there in 1887; and *Miss Livett* another in 1906. Base of Brean Down, 6 mo. 21, 1835; *Herb. Clark*. Sandy fields near Brean; *Miss M. W. Mayow* and *T. B. Flower*. Near the mouth of the Brue, 1888; *H. S. Thompson*.

I have assumed that this is a native on the Bristol Channel; but it may be the case of a rare maritime plant occurring as a casual in one or two of the stations given.

## RESEDACEÆ.

### RESEDA Linn.

**107. *R. lutea* L. *Base Rocket*. *Wild Mignonette*.**

Native or colonist, probably the latter. On roadside banks, waste ground, and in cultivated fields; preferring light soils. Not common, although distributed thinly all over the district.

June to August.

**G.** On a wall at Clifton, 1796; *Swayne* in *Withering*. Some fine plants on a wall in Oxford St., Kingsdown, 1907 to 1911. Shirehampton, from time to time during a long period, recorded by *Flower*, *Sweet* and *Wheeler*. On made ground near the river towards Avonmouth, 1902-1910. Combe Hill near Henbury; *C. Bucknall*. Henbury; *Thwaites* in *Herb. Watson* and *W. E. Green*. On an old colliery heap between Kingswood and Hanham, 1880 to 1892. St. Philip's Marsh, Bristol, for several years in plenty. In several spots about Dursley, 1898.

**S.** Bank on the roadside beyond Haberfield Bridge, and on the border of an adjoining field; noted there for many years, and in two or three other spots



between Portbury and Pill. The Rev. W. Spicer's record for Pill might refer to one of these outliers. In several places behind the warehouses at Portishead Dock, observed in three successive seasons, but not plentiful, and of course not wild. Walton-in-Gordano; *W. E. Green*. Near Cadbury Camp; *D. Fry*. Road-side above Wraxall, 1885-7. Sandford Hill; *W. B. Waterfall*. Abundant in a small field at Shipham, 1893. Highbridge; *Miss Peck*. In several places near Holwell, 1903 to 1908: *Rev. S. Laing*. By the Avon at Newton St. Loe, in a place to which Bath refuse had been barged. In a fallow field between Twerton and Englishcombe. Combe Hay, 1906; *Miss Livett*. Plentiful in cultivated fields on Lansdown, 1900. Odd Down, Bath, fine and abundant, 1891. Near Dunkerton, 1883. Several other Bath habitats are given in *Fl. Bathon*.

It may be noted that this species is more frequent with us than in many districts. It is very rare in some counties, and seems to be entirely unknown in Herefordshire.

**108. *R. suffruticulosa* L.** (Including *R. alba* L.). *White Base Rocket*. Alien; naturalized near the sea; elsewhere a casual. Rare and local.

July, August.

**G.** St. Philip's Marsh, Bristol, on rubbish tips, abundant in 1900-4. For many years on old colliery rubble at "Holly Gess," Kingswood; now gone.

**S.** Formerly plentiful about Weston-super-Mare, as the following records testify. Abundant there, 1834-5; *Herb. Powell*. Specimens in *Herb. Sowerby* collected at Weston by W. Borrer are dated Aug. 1833. In *Engl. Bot. Suppl.* 2628, Weston is referred to as a locality for the plant, found there by Mr. J. Woods, in March, 1830. In several places about the town, 1843; *G. S. Gibson*. Waste ground near the sea at Weston, 1847; *F. J. A. Hort*. Weston-super-Mare, 1847; *Herb. Clark*. Fields near Christ Church; *St. Brody, Fl. Weston* (1856). Anchor Head rocks, 1876-8; *T. F. Perkins*. Still there in 1890, and at the Weston Pottery ponds; *Mrs. Gregory*. Still at Weston-super-Mare, 1908; *Miss Livett*. Burnham sand-hills, 1836; *Herb. Clark*. And seen there also in 1886-7 by *H. S. Thompson*. In an enclosure between Burnham and the light-houses, 1885; *D. Fry*. About the Palace Garden at Wells, some years ago; *Miss Livett*.

**109. *R. Luteola* L.** *Dyer's Weed*. *Weld*.

Native; on rubble about the limestone quarries at Bristol, kilns, railway banks and the like. Locally common. July and August.

Swayne, about 1770, observed that this was one of the first plants to spring up on spoil-heaps from the coal-pits, and so was very common in S. Gloucestershire.

Parkinson mentions its cultivation (1640).—"In some places in Kent they use to sow their fields therewith after their Barley, which abideth untill the next yeare, and then is gathered."

## CISTACEÆ.

## HELIANTHEMUM Mill.

110. *H. Chamæcistus* Mill. *H. vulgare* Gaertn. Common Rock Rose.

Native ; on dry, rocky banks and hillsides, as the slopes of our Downs at Clifton, where a white-flowered variety has been observed. In the open glades of Leigh Woods one often finds a kind of turf formed by this plant with a close mass of dwarf stems ; probably caused by rabbit-nibbling. Summer.

111. *H. polifolium* Mill.

Native ; on Brean Down ; and Purn Hill, Bleadon. There is but one other station in Britain for this species. It grows plentifully, and flowers all summer, on declivities facing south-west. Some of the plants are very large and apparently of great age. As is recorded in *Journ. Bot.* Oct. 1888, the discovery of this great rarity on the mainland, a few weeks previously, is due to Mr. David Fry. Purn Hill is an elevation of the carboniferous limestone situated inland to the S. E. of Brean Down at a distance of about two miles from that promontory ; and the abundant occurrence there of *H. polifolium* marks an important extension of its previously ascertained range in N. Somerset.

A pale-flowered plant, quite intermediate between the two species and doubtless the hybrid *H. Chamæcistus* X *polifolium*, was found on Purn Hill, Bleadon, in 1888 by Mr. H. S. Thompson ; and described by him in a York School (Bootham, vol. XII, p. 177) *Natural History Journal* of the time. The plant is mentioned in *Fl. Som.* ; and specimens were shown at a meeting of the Linnean Society in Feb. 1909 by the Rev. E. S. Marshall.

In the *Phytologist*, IV, p. 1055, a Worcestershire botanist, by some odd slip, relates the gathering of this species at Clifton, together with *Ophrys arachnites* and *Meconopsis cambrica*, in June, 1853. Truly a "chapter of errors."

First record, 1688 :—" *Chamæcistus montanus* Polii folio, D. Plukenet. . . . Found by the Doctor upon Brent Downs in Somersetshire near the Severn Sea."—*Ray, Fasc.* p. 4.

[*H. canum* Dun. and *H. ledifolium* Willd. are both erroneously recorded in old books as having been found in this district.]



## VIOLACEÆ.

## \* VIOLA Linn.

112. *V. palustris* L. Marsh Violet.

Native; in bogs and heathy swamps, chiefly about the sources of moorland springs on Mendip. Ascends to about 1,000 feet on Blackdown. Although Watson, in *Topogr. Botany*, has it from West Gloucestershire, the plant is unknown to me in that portion of the vice-county included in our district. Rare and local. April to June.

**S.** Abundant in bogs about the Mineries near Priddy; and in similar spots on high ground at Beacon Hill. I have seen it also in several boggy hollows on the flank of Blackdown over Burrington Combe. In plenty on Downhead Common, 1883 and 1886; pointed out to me by Mr. David Fry. Occasionally on the turf-moor between Wedmore and Burtle, 1856; *Thos. Clark*. I think it must be rare upon the peat, for I have met with it only once; and Mr. Murray gives no personal record in *Fl. Som.*

113. *V. odorata* L. Sweet Violet.

Native; plentifully distributed throughout the district. March to May.

Some botanists hesitate to pronounce the sweet violet to be indigenous, except in the South of England; but I do not feel a doubt that it is so in this district. It grows in much of our wildest woodland; and the hedges of ancient lanes—remote from habitations—are full of it.

The type *violacea* is very much less frequent in the vicinity of Bristol than the form *alba*. This has been accounted for by supposing that the blue violets have been largely dug up and transplanted into gardens, or hawked for sale in the streets, a fate which yearly befalls thousands of our ferns and spring flowers, not merely in this district but in the neighbourhood of all large towns. Another suggestion on this point of respective frequency is that the form *alba* spreads more readily and is therefore found in the greater abundance.

In this genus the showy spring flowers do not necessarily ripen seed: later in the season small apetalous flowers which never expand, and are self-fertilized, develop seed in abundance. The leaves do not attain their full size until the fruit ripens; thus specimens of this species and of *V. hirta* when in fruit present an appearance very different from that of others gathered when the spring flowers are expanded. Both states should be represented in the herbarium.

Mr. Murray's caution may well be repeated here: that our common "white violet" is quite distinct from the *V. alba* Besser; a plant which has not yet been found in Britain, although it is considered not unlikely to occur. It would be well to follow Dr. Neuman in calling our white sweet violet *f. albiflora* instead

\* This account of Bristol Violets owes much to my friend Mrs. Gregory, an enthusiastic student of the genus, who worked for many years in North Somerset; and whose knowledge of the *Nominium* section is unexcelled by that of any British botanist. The help obtained from her notes and specimens is most gratefully acknowledged.

of *alba*, and so avoid possible confusion in that regard. I am told that the *dumetorum* of Rouy et Foucaud is the same plant.

Dr. C. E. Moss remarks that the large white violet of parts of Somerset seems to differ from the smaller white one of Cambridgeshire.

VAR. *imberbis* Leighton, (*Flora of Shropshire*, p. 116), in which the white flowers have their lateral petals destitute of a hairy line or tuft, is so common with us that I have found fifty such plants in succession in various localities about Bristol. Leighton does not mention the fact that his variety is not restricted to white-flowered violets. There are a fair number of beardless flowers among the blue-flowered plants: in fact, about Clevedon, Miss Livett finds *imberbis* to be the prevalent form. When raised from seed *imberbis* has been found to strictly maintain its character.

VAR. *sulfurea* Lamotte.

Mrs. Gregory has had this under observation some years in the S.E. portion of Worlebury Wood. It has truly sulphur-coloured flowers—practically scentless—and a violet-tinted spur; thus agreeing well with the plant of Rouy et Foucaud.

VAR. *subcarnea* Jordan.

The light red or liver-coloured flowers of this variety are most distinctive and very fragrant. The only other material character possessed by it is an emarginate lower petal—as described by Jordan—and that is not altogether constant. It is quite a rare form. The neighbourhood of Stanton Drew, and hedgebanks between that village and Pensford, are the only spots known to Mr. Fry and myself where the plant is at all abundant. It grows also in hedges about Ingst, G.; in Markham Bottom (*Mr. S. Irwin*); and very sparingly in open woodland above Weston-in-Gordano. Mrs. Gregory reports it as being rather frequent about Banwell, Christon, Winscombe and Weston-super-Mare. Dial Hill, Clevedon; *Miss Livett*. Gratwicke Hall and Tickenham Hill; *Miss Roper*.

Mrs. Gregory has shown me another *odorata* form as var. *præcox*, an early-flowering violet, which she thinks may be distinct. It has shorter and more slender stolons, and the rosettes bear flowers in their first year, as does *V. alba* Besser. The flowers are small, blue or purple and scented, with the upper petals exceedingly short and recurved, being thus well separated from the narrow lower ones. Near Weston-super-Mare this plant has been observed flowering from the first days of January. I have searched in several directions but cannot find it about Bristol.

HYBR. *V. odorata* × *hirta* = *V. sepincola* Jordan.

Very rare. On a slope on the left bank of the stream in Murdercombe near Mells: a small patch in 1898. Hillside above Wrington, April, 1900; and Winscombe; *Mrs. Gregory*. Uphill, 1909; *Miss Roper*, named by Mrs. Gregory. The Mells plant is very near *odorata* in its white flowers (beardless), shape of leaves, and far-reaching stolons. But it is extremely hairy, and such capsules as are produced are partially abortive. There is distinct, although



slight, evidence of *hirta* in the foliage-outline. Flowers scented, as they should be according to French authors. Mr. Beeby, who agreed on the naming, told me that this hybrid sometimes produces a few seeds. It is nowhere frequent. Mrs. Gregory notes that the stolons in *sepincola* have a whitish, polished appearance. Her Wrington specimens had purple flowers, scented; and the summer leaves were very large, measuring  $4\frac{1}{2}$  inches from base to apex of the blade. I have seen another blue and scented plant, distinctly a *sub-odorata* hybrid, which was brought from Ingst, G. by Miss Roper.

Still another *sub-odorata* hybrid is reported by Mrs. Gregory from Banwell Wood. It has rich red-purple blossoms, very highly scented; and densely pubescent capsules—far more so than in either *hirta* or type *odorata*. The stolons are unusually slender and smooth. In addition to other points, some evidence of *hirta* parentage is afforded by the bracts being constantly below the middle of the peduncles.

#### 114. V. *permixta* Jord.

Native; in open woodland and sheltered places, with us always upon limestone; locally frequent. March and April.

**G.** In a wood on Almondsbury Hill; not in great quantity, but very well marked. Laneside on the limestone ridge between Alveston Common and Elberton.

**S.** Rather plentiful in a portion of Worlebury Wood, near Weston-super-Mare. It was there that Mrs. Gregory first identified the plant, until then unknown in our district; or, I believe, in the county of Somerset. Rocky bank at the top of the West Hill, Wraxall. A large patch on the laneside above Limeridge Wood, on the way to Cadbury Camp; and, more sparingly, some way down Tickenham Hill. In several places on the skirt of the wood at top of Bourton Combe; and by the side of green lanes thence along the ridge of Backwell Hill. It covers several square yards in two spots above the stream (left bank) in Murdercombe, between Mells and Great Elm. Several patches on banks in the lane leading from the railway station to Wookey Hole, 1898.

It will be seen that I have given this plant place and number as the distinct species it was considered to be by Jordan and other botanists. The question whether it be, or be not, a *sub-hirta* hybrid of the sweet violet is by no means easy to determine; although now that the possibility of cross-fertilization among the expanded spring flowers of these violets has been proved, a main difficulty has certainly been removed.

The following facts tend to support arguments, of more or less strength, against the theory that violets of the *permixta* group are of hybrid origin. 1. The Rev. A. Ley in *The Flora of Herefordshire*, p. 34, states as follows:—

My Herefordshire experience does not lead me to confirm a remark of Mr. Briggs that *Viola permixta* is found growing *only* in company with *hirta* and *odorata*; on the contrary its favourite habitats in Herefordshire are in shady woods upon sandstone, a situation in which neither *hirta* nor *odorata* is usually found." 2. Mrs. Gregory, Mr. David Fry and Mr. Bucknall, in their gardens at Weston, Saltford and Clifton, have found that plants of *V. permixta* produce

seedlings like themselves, which I believe does not accord with what is known as to the life-history of hybrids. For although hybrids do, undoubtedly, sometimes perfect their seed or part of it, such seed has seldom been known to produce plants exactly corresponding to the hybrid from which they have been derived. 3. *V. odorata* flowers much earlier than *V. hirta*, which would seem to lessen the chances of hybridization, though no doubt some flowers of *odorata* are usually to be found in good order whilst *hirta* is in perfection. Great stress cannot be laid on the last fact, but if taken in connection with the other weightier ones it may have some value.

A modern authority on the genus, Dr. Neuman, places both *sepincola* and *permixta* apart from the hybrids. Still it seems to me that the balance of probability inclines to the conclusion that both are intermediates of hybrid origin. The foliage of the last-mentioned plant is distinctly intermediate between that of the supposed parents, with slight variations. In some instances the leaves are in shape a little nearer to *odorata*; but in general they decidedly favour *hirta*. The flowers are of a pale slaty-purple hue and scentless. The stolons do not root so freely as do those of the sweet violet; but they do root eventually, and being comparatively short they form in time a closely interwoven patch (with no interspaces) that may be several feet across.

A most peculiar fact concerning the plant in cultivation has been communicated to me by both Mrs. Gregory and Mr. Fry. In their gardens, clumps which in April had produced a fine show of typically coloured bloom had a second flowering in Autumn. The later flowers in Mrs. Gregory's case were *white* and fragrant: with Mr. Fry they were also white, but scentless! There is no doubt as to this experience, for the particular plants had been carefully watched.

Until recently it was believed and taught that, in this section of the genus *Viola*, the showy open flowers are invariably sterile and that seeds are alone produced by inconspicuous cleistogamous flowers. Of course, if that were true, cross-fertilization and hybridity in these plants would obviously be impossible. But it has now been shown that the open flowers, although never autogamous, are adapted for fertilization by insects. Failing the visits of bees etc., they are sterile. The production of showy flowers is greatly influenced by environment. Kerner observed violet plants of *sepincola* growing in the deep shade of woods where not a single individual had developed open flowers with expanded petals. Later they bore abundance of good fruit. From some of this seed he subsequently reared plants in a sunny garden, and there they produced large scented blossoms. Similarly, if the spot where the violets grow becomes exposed to sunlight through the felling of trees, plants which for years in the deep shade had borne none but cleistogamous flowers will, under the influence of the sun's rays, produce flowers with expanded petals to be visited by bees in search of honey. And during the last year or two experiments made at Cambridge under the most careful conditions have proved the fertility of these open spring flowers when pollinated by hand. (See *Journ. Bot.*, 1907).

These considerations, highly interesting and instructive in themselves, point to the probable hybrid origin of *V. permixta*, as well as of some other doubtful intermediates related to allied species.



**115. *V. hirta* L. Hairy Violet.**

Native; on rough bushy banks and in woods. Common on limestone, rare off it. End of March, April and May.

**G.** Under bushes on Clifton Down by the Bridge Valley road, near the site of the old turnpike. About Shirehampton Park, Kingsweston, and along Combe Down towards Westbury-on-Trym. Stoke Gifford. Hedgebank and wood by the Avon in Bitton parish, on oolite. Tytherington Hill. Almondsbury Hill, and neighbouring woods. Bury Hill, N. of Yate Rocks. Borders of Hay Wood near Elberton. Henley Hill, S. of Cold Ashton, and in Monk's Wood that lies below; on oolite.

**S.** Common in Leigh Woods and about Failand. Bourton Combe. Backwell Hill. Brockley Combe, and the Cleeve Woods. Stockwood, on lias. Norton Malreward. Bishop Sutton. Banwell Hill. Portishead Down and Weston Big Wood. Clevedon. Woods above Congresbury that continue into the King's Wood. Redhill and "Barley Wood." Cheddar. Winscombe. Worlebury Wood and Worle Hill, near Weston-super-Mare. Uphill. Wedmore. Wells. Great Elm. Frome. Around Bath, common; *Fl. Bathon*.

The form *lactiflora* Reichb. is very beautiful. There is a quantity of it on one of the lower slopes of Cadbury Camp, with large flowers that have the centre quite white and the remainder faint bluish-purple with purple veins. In 1900 some plants there produced nearly pure white flowers. In another locality between Brockley and Goblin Combes the flowers were *almost* white. And on Banwell Hill, in 1904, Mrs. Gregory got some plants with flowers perfectly white.

The form *rosea* Beeby was found by Mrs. Gregory on the border of a wood at Christon; and near Wrington, Somerset. This is stated in the *Flora of Kent* to come true from seed, retaining on cultivation its characteristic colour. The tint of the Christon flowers was pinkish rose, but sometimes the peculiar hue can be said to be *rose* only by comparison, being rather lilac or pinkish purple.

**VAR. Foudrasi (Jord.) Rouy et Foucaud**, has distinctive characters of more import than the mere colour-forms. It is what we have been accustomed to call "small *hirta*," is frequently met with, and can be readily recognized. A full description of the plant, as a species, is given by Boreau (*Flore du Centre de la France*, p. 73).

Miss Livett has found on the Castle Hill, Clevedon, a very dainty little *hirta* with narrow white petals. This was new to Mrs. Gregory as an English form. She named it *V. Foudrasi* f. *albiflora*. According to Rouy and Foucaud it is recognized in France.

Other varieties, defined by Continental botanists, are the following:—*pinetorum* Wiesb.; *propera* Gillot; *ænochroa* Gillot and Ozan; *hirsuta* Lange; *inconcinna* J. Briquet; and *variegata* Bogenh. All these have been identified in North Somerset by Mrs. Gregory. Their descriptions can be referred to in the later French Floras.

**116. *V. calcarea* Gregory.**

Native ; in rough pasture on the limestone hills of North Somerset, and occasionally on hedgebanks and wood-borders : locally common. April and May.

**S.** Bourton Combe. Brockley Combe, and plentiful on the high ground thence towards Cleve. Hedgebanks on Tickenham Hill, and in a stony pasture hard by. On the Cadbury range, Court Hill, and Castle Hill, Clevedon ; *D. Fry*. Worle Hill, Uphill, Bleadon and other hills within reach of Weston-super-Mare ; *Mrs. Gregory*. Hillside N.W. of Cheddar ; *Miss Livett*. Reported also by the Rev. E. S. Marshall from a hillside at 600 ft. between Axbridge and Cheddar Wood. Sandford Hill. Hampton Down, near Bath ; *Miss Peck*.

Described and figured from Worle Hill specimens by Mrs. Gregory in *Journ. Bot.* 1904, p. 67. A very well-marked species, that has been proved by many years' cultivation to maintain its peculiarities unaltered. The very short, conical, almost imperceptible spur (in some of the later flowers it is only rudimentary and quite concealed by the sepals) ; and stout, branched, woody rootstock, are strong characters that in no degree grade or shade into either of the other species. Mr. J. G. Baker, F.R.S., reported to Mrs. Gregory : " We have put your violet in the richest soil we can find at Kew Gardens, but cannot prevail on it to change its characters." The narrow petals of the very small flowers are with us, as a rule, violet ; but we have some of a pale mauve hue corresponding to those found in southern counties. For *V. calcarea* is not confined to North Somerset. It is on record from Dorset, Cornwall, Kent, Surrey and Cambridgeshire. In Kent it had attracted notice at an early period :—" *Viola fol. Trachelii serotina hirsuta radice lignosa*. In Charleton Wood. . . ." *Merrett*, p. 125 (1666). *Fl. Kent*.

That this violet should not have taken its proper place earlier ; and that authors should have passed it over as a " state," " form," or " variety," is certainly a strange thing. Babington's *V. hirta* var. *calcarea* included the var. *Foudrasi* which is distinguished, among other things, by a hooked spur and greater hairiness ; and his very inadequate description, as given in the *Manual*, would fit either plant.

**117. *V. silvestris* Reichb. *V. Reichenbachiana* Boreau.**

Native ; on shady banks and in woods, rather common. March and April.

It grows in special abundance along the ridge between Wickwar and Charfield ; about Stockwood ; in the Chew valley ; in hollow lanes about Failand ; Barrow Gurney ; and in the Walton valley, both on the Clapton side and above Weston-in-Gordano. But it is well dispersed over our whole area ; preferring, but not restricted to, a calcareous soil.

This species affects damper and shadier situations than does *V. Riviniana*, and flowers at least a fortnight earlier. A hybrid between the two has been found near Wrington by Mrs. Gregory, and is known to occur elsewhere. Mrs. Gregory got also a hybrid with *canina* at Banwell Wood.

Two patches of this violet were met with near Walton-by-Clevedon, by Mr. D. Fry, in which every flower had four petals and four spurs. All the petals showed in shape and veining the customary features of the lower petal in



this species. Mr. Fry has seen in the Chew valley a good deal of a very pale form, some of which he thinks will come under var. *leucantha*. The same thing occurs in fair quantity near Weston-super-Mare; and from Winscombe Mrs. Gregory has a plant near the sub-var. *lilacina* Celak.

### 118. *V. Riviniana* Reichb.

Native; on hedgebanks, furzy commons, and in open woodland, more robust and more plentiful than the last. It makes a great show in parts of Leigh Wood and on the slopes of Mendip. April to June.

A dwarf, open-ground form,—*V. flavicornis* Forster not Smith, is very handsome. It has small leaves and large bluish flowers with, as a rule, yellow spurs; is not uncommon; and has sometimes been confused with *V. canina*.

The var. *nemorosa* Neum.—a large-flowered woodland plant—is reported by Mrs. Gregory from Tickenham Hill.

“The truly typical *Riviniana*, that with a nearly white, or slightly yellow spur, seems much less common than that in which the spur has more or less a bluish or leaden tinge. The flowers vary very much in colour, from a light pale blue to a dark blue, and from that to a rich purple-violet, almost as in *V. odorata*. But apart from these differences there seems nothing to distinguish the plants.”—*D. Fry*.

Then there is a very rare form with pubescent stems and red flowers (a very bright and rather deep pink),=var. *villosa* Neum., which grows on Mendip at Winterhead below Shipham. Mrs. Gregory had it there, and from Weston Wood. See *Journ. Bot.* 1897, p. 123. At first this appeared to have some reliable characters; but after cultivation for a while our plants became glabrous, and at length Mrs. Gregory, D. Fry and I agreed that the form, as far as we knew it, was not worthy of distinction.

*Riviniana* and *silvestris* together are the plants commonly known as *Wood Violets* or *Dog Violets*. Botanical writers are at variance as to whether they really form two distinct species; and although I have given them separate numbers I am not at all sure of having done right. The extreme forms are indeed widely different, but I find many intermediates which I cannot assign decidedly to either the one or the other, and which I cannot believe to be all hybrids. Messrs. Beeby, Townsend, and Hanbury and Marshall in *Fl. Kent*, consider them certainly distinct; while Briggs, Druce, Ley, Purchas and Arnold Lees treat them as forming one aggregate.

A monstrosity of the Dog Violet with plaited and crisped leaves is reported from the Rev. H. N. Ellacombe's garden at Bitton in *Journ. Bot.* IX, p. 244. At page 305 Mr. Ellacombe states that two other instances of crested *Viola* plants had come under his notice; and that in all three cases the plants grew either upon, or very close to, the roots of crested ferns. He discusses the possibility of contiguity having influence on the forms of plants.

### 119. *V. canina* L. (*pro parte*). *V. ericetorum* Schrad.

Including *V. flavicornis* Smith not Forster. *Dillenius'* or *True Dog Violet*.

Native; on open hillsides and heathy or furzy commons. Rather rare and local. End of April to June.

**G.** Kingsweston Down. Rodway Hill and Siston Common. Ivory Hill near Frampton Cotterell. Yate Common. Lyde Green. Rough pasture (formerly part of Yate Lower Common) a mile east of Rangeworthy.

**S.** Leigh Down. Barrow Hill at 600 feet, above Barrow Gurney. Furzy hillside near Stanton Drew towards Knowl Hill; the plant corresponding almost exactly with the description and figure in *Engl. Botany* of *V. flavicornis* Smith. It grows there with *V. Riviniana*; *D. Fry*. Walton and Court Hills, Clevedon; some plants with white flowers at the former place. Clapton and Weston Moors. Hills on the Bleadon range, above Hutton; *Mrs. Gregory*. In company with *Mrs. Gregory* I have seen it in plenty on Worle Hill. Brean Down. Peat moor towards Ashcot Station. The pure white form on Walton Heath near Glastonbury, mentioned by Collins and Clark (see *New B. Guide* and Clark's paper on the plants of the Somerset Turf-moors), was cultivated by Clark in 1822 from turf-moor seed and placed in his herbarium. This plant, which is rather rare at the present time, agrees well with *V. nemoralis* Jord. as described by Rouy et Foucaud; and is quite different from another white *canina* known as *f. candida* Aresk. Of this last-named form about fifty plants were seen in a coarse pasture above Tining's Farm on Mendip by Mr. F. Samson in 1910!

It is a rather puzzling state that occurs in rushy enclosures on the peat of the Walton valley near Weston-in-Gordano. Some stems brought to me by Mr. H. Audcent in 1909 simulated very closely a *stagnina* hybrid. But on going over the ground the succeeding year it became clear that the luxuriant specimen in question had been drawn up among herbage on the wet bank of a rhine. No *V. stagnina* has yet been found in the district.

VAR. **macrantha** *Gren. et Godr.*

**S.** Sandy fields between Uphill and Weston Sanatorium; now much diminished by golfing. Along the coast at Brean, Berrow and Burnham; where the large bluish flowers form a beautiful adornment of the sand-hills and adjacent flats at a time when but few other flowers are present.

VAR. **calcareæ** *Reichb.*

This differs from type *canina* in the same way, though not to the same extent, as *V. calcareæ* Greg. differs from *V. hirta*. *Mrs. Gregory* has it from Worle Hill and one or two other similar localities. She considers it to be a good variety, although its stability has not been tested by growing it on various soils.

VAR. **lanceolata** *Mart.-Don.* = *V. Guitteauæ Giraud.*

**G.** In a poor, clayey field by the Midland Railway, a mile east of Rangeworthy—an enclosed portion of Yate Lower Common.

The longer, narrower, somewhat truncate leaves on long petioles, sufficiently separate this plant from type.

I learn from *Mrs. Gregory* that the variety is known at only two other spots in the kingdom.

Speaking generally, the leaves of these *canina* plants are long with a blunt



point, and their texture is thicker and smoother than with the Wood Violets. The flowers have broader petals distinctly blue in tint, and there is no central rosette of leaves at the base of the stems. Some acute observations on the development of flower-shoots in this and the last species are described by the Rev. W. H. Purchas in *Fl. Herefordshire*.

HYBR. *ericetorum* × *Riviniana*.

Near Bathampton; *Miss Peck*.

**120. V. tricolor L. Wild Pansy. Heartsease.**

Colonist; a weed of cultivated land. The large-flowered type is very rare, and occurs only singly as a casual—a degenerate garden pansy as a rule. Other plants with smaller petals brightly tinted with purple, blue and yellow—or almost wholly with yellow—and varying much in foliage, are sometimes met with. They belong to *tricolor* rather than to *arvensis*, and in most cases that is all that one can say. Such a plant was abundant in a turnip-field on Wraxall Hill in 1903. I gathered a number of specimens there one afternoon without noticing that they differed from each other to any marked extent, and sent them to the Bot. Exch. Club of the British Isles (*Report* p. 18, 1905). No distinctive name was fitted to them at the time, but I now see in the account of British Pansies lately published by Dr. Drabble that they supplied at least three of Jordan's species; viz. *V. agrestis*, *V. ruralis*, and *V. obtusifolia*. And a friend to whom I had given a sheet of that same gathering ran it down straight by Dr. Drabble's Key to a fourth—*V. Lloydii*! This is a good illustration of the difficulties encountered by our most skilled botanists when attempting to make British plants fit the descriptions of Continental varieties. That colony did not recur. Another plant from Sandford was named *obtusifolia* by Dr. Drabble; and one from the peat moors "a large *agrestis* form." A great many intermediates have been found in this country: puzzling forms that have not seemed to correspond to any of the numerous so-called species and varieties described on the Continent. Work in such a direction must needs be discouraging, resembling as it does an endeavour to fit square pegs into round holes.

VAR. *arvensis* Murr.

Common in cornfields etc. throughout the district.

May to September.

## DROSERACEÆ.

## DROSERA Linn. Sundew.

121. *D. rotundifolia* L.

Native; in *Sphagnum* bogs and spongy peat, locally common.

July, August.

**S.** In boggy spring-heads and like spots on the Mendip moorland. Down-head Common; *H. F. Parsons*. In plenty on the southern peat moors.

First record:—"Rorida sive solis ros . . . Angliæ Cantia et Somerseti prefecturæ hac adeo scatent, ut non procul illustri Cœnobio et monte Glassemberio vocatis," . . . *Lobel. Adv.* p. 454 (1570).

122. *D. longifolia* L. *D. intermedia* Hayne.

Native; often with the last, but much scarcer on the higher ground. Like many of the peat moor plants this may be plentiful in two or three enclosures, and absent from most of the remainder.

July, August.

FORMA *subcaulescens* Melvill.

**S.** On the peat of Shapwick Moor, 1907! *Miss Roper*.

"Differs from the type mainly in having a very decided and leafy stem, varying in height from half-an-inch to two inches; the stem leafy to the base; the leaves, which have long petioles, projecting almost at right angles to the stem, while towards the upper part of the stem, at the point where it emerges from the water or watery mud in which it has grown, the usual tendency to form a rosette of leaves is noticeable."—*J. Cosmo Melvill*.

123. *D. anglica* Huds.

Native. It may be extinct. The only North Somerset specimens known are in the Boswell and Stephens Herbaria, from the Wedmore turbaries many years ago.

The genus is unknown on the Gloucestershire side of our district.

It is stated that the flowers of Sundews seldom or never open—that they are almost always cleistogene, *i.e.*, self-fertilizing. I do not remember ever seeing an open flower; but my attention has not long been directed to the point.



## POLYGALACEÆ.

## POLYGALA Linn. Milkwort.

124. *P. vulgaris* L.

Native; on dry banks, heaths and hill pastures; common.

June to August.

VAR. *oxyptera* Reich.

**G.** Clifton Down. Rodway Hill. Near Tockington. Tortworth.

**S.** Leigh Down. Furzy hillside between Ursleigh Hill and Pensford; *D. Fry*. Upland pastures above Cheddar and Draycott; and in Cheddar Gorge, where I first gathered it in 1890. Weston-super-Mare; *Mrs. Gregory*. Englishcombe; and hillsides above Bathampton, beyond Bath.

This plant differs from *eu-vulgaris* by its more diffuse and prostrate habit; narrower leaves and narrower wing-sepals; the smaller, more distant and more deflexed flowers, and the more elongated style. There are, however, plenty of intermediates between this and the type.

125. *P. serpyllacea* Weihe. *P. depressa* Wend.

Native; on damp heaths, commons, and rough moory ground; rather common in such spots, rare in the cultivated districts. June to September.

**G.** Filton Meads. Siston Common. Yate Common; some plants there with white flowers. Roadside wastes between Pucklechurch and Dyrham. Barren pastures between Charfield and Wickwar, and near Wotton-under-Edge.

**S.** In the "Wild country." Upper Failand, in a boggy field. Rough pastures and heathy ground on Barrow Hill and Potter's Hill. Furzy hillside near Stanton Drew. Walton-in-Gordano. Abundant on the Mendip heathland. Downside Common. Downhead Common. In plenty on the drier parts of the peat moors.

126. *P. calcarea* F. Schultz.

Native; on dry hillsides, very rare.

May and June.

**S.** Abundant on an oolitic hill near Fortnight, between Bath and Combe Hay; where it was first noticed by Mr. F. Samson in May, 1909.

The plant grows with *Hippocrepis* in close brilliant patches which are rendered conspicuous at some distance by the beautiful bright blue tint of the flowers. How it escaped recognition by all the able Bath botanists of past generations is a mystery.

Many years ago it was believed to have been found on Sandford Hill by Mr. W. B. Waterfall. But Mr. Murray ascertained that there had been some misunderstanding with Mr. Briggs to whom the specimen was referred, and so the record was not accepted for *Fl. Somerset*. The Mendip locality, however, is not an unlikely one for this species. It grows on the Cotswolds a few miles

north of our limit, as well as at Maiden Bradley to the south, in Somerset. There is a space of at least forty miles between those stations, and Mr. Samson's discovery at a point nearly midway gives a most welcome addition to our district list.

A review of the British species and varieties of *Polygala*, accompanied by figures of the most characteristic parts—the wing-sepals, pistil and ripe seed—was contributed to the *Journal of Botany* for June, 1877 (vol. vi. p. 168), by Mr. Alfred W. Bennett.

## CARYOPHYLLACEÆ.

## DIANTHUS Linn.

[*D. prolifer* L. Alien. A few plants annually for some years (1882 to 1889) on an old colliery heap between Kingswood and Hanham with other casuals, all apparently derived from grain-siftings. Now gone.]

[*D. velutinus* Gussone.

Casual in an old lias quarry near Twerton; Sept. 1902.]

127. *D. Armeria* L. *Deptford Pink*.

Native perhaps on limestone hills: casual on waste ground. Very rare.

July, August.

**G.** Large field by Old Down, Tockington, 1910; *W. A. Harford*.

**S.** Garden weed at Failand, for 40 years; *D. Williams*. One plant on a wall at West Town, July, 1880; and one under a wall near Bourton Combe, July, 1882. Brockley; *H. S. Thompson* in *Fl. Som.* Edge of a covert on limestone adjacent to Ball Wood, between Congresbury and Wrington, July, 1882; *D. Fry*. Considered to be wild there by Mr. Archer Briggs when he was conducted to the place in August, 1883. During his visit at that date Mr. Briggs also noticed one or two plants on waste ground by Walton Down, near Clevedon. Rather plentiful on the down N. of Charlcombe Bay, between Clevedon and Portishead, 1909; *Miss Livett*. Lane from Tickenham to Cadbury Camp, 1898; *Miss F. M. Ruddock*. Slope under Cadbury Camp, Tickenham side, in plenty, June, 1901! *A. E. B. Gregory*. Barrow Hill; *Herb. Perrin*.

This might be figuratively described as a plant of vagabond disposition—rarely staying long in one spot, but shifting presently somewhere else. The only stations of those here mentioned where one might confidently expect to find it would be those under Cadbury Camp and on the coast down.

128. *D. deltoides* L. *Maiden Pink*.

Native; on the bushy slope of a rough sandstone pasture. Very rare.

May to September.

**G.** Henbury, 1839; *Miss Harvey* in *Herb. Watson*. Cited for West Gloucester (vice-co. 34) in *Topogr. Botany* on the authority of Dr. G. H. K. Thwaites,



who reported plants seen within ten miles of Bristol. His locality in this county (and Miss Harvey's) still remain unknown.

**S.** Recorded also for North Somerset (vice-co. 6) by Dr. Thwaites; probably from the spot between Keynsham and Brislington described by other observers as follows:—Glen behind Avon Farm near the Ferry, Keynsham; *Stephens, Cat.* 1835. Keynsham, 1867; *C. E. Broome* in *Herb. Jenyns*. Rediscovered in May, 1886 by Mr. D. Fry, who introduced me to his find. In that year it remained in flower until the first week in October. One plant had lilac petals, and there was a small patch with pure white flowers and very pale foliage, = I presume, to var. *glauca* L. The petals are by no means always spotted as is stated in some descriptions. I am sorry to add that of late years the plant has become scarce. In the *Gardener's Chronicle* of 18 Aug. 1883, Mr. Frank Gunning stated that this Pink grew within a few miles of Bristol, and was "present over several square yards close to where people pass daily"; possibly alluding to the above habitat, but I could not ascertain if that were so. A large patch in Croscombe Churchyard, apparently wild; *Miss Roper*. On lias near Street; *J. C. Collins* in *N. B. G. Suppl.* Unconfirmed.

**129. *D. glauca* Huds. *D. cæsius* Sm. *D. gratianopolitanus* Villars.  
Cheddar Pink.**

Native; on limestone rocks in the Cheddar Gorge and at two other spots on Mendip. The only locality for the species in Britain, and the one which marks the northern as well as the western limit of the plant in Europe.

June and July.

First record: "On *Chidderoks* in Somersetshire . . . Mr. Brewer.—*Armeria* species flore in summo caule singulari." *Ray, Syn.* ed. 2 (1696).

Dillenius refers to it (1732) under the name of "*Tunica rupestris folio cæσιο molli flore carneo*."

The other stations are on some crags towards Charterhouse at a distance from Cheddar Gorge, and in a fissure above Draycott where the plant was detected a few years ago by the Rev. E. S. Marshall.

Where protected, the Pink increases and seeds freely. Thus the lower ground at Cheddar is fairly well supplied with seedlings from inaccessible ledges of the high rocks, where the plant still exists in plenty. Of course it is often taken away and planted, and does well on old walls in many places. Dr. Stephens stated in 1835 that, some years earlier, members of his family had sown a large quantity of the seed in various places on St. Vincent's Rocks, and it is known that other people, from time to time, brought seeds from Cheddar and set them on the Rocks, without much success as it was thought. But Mr. T. B. Flower, in 1841, saw a patch of *D. cæsius* established by the pathway leading (as it then did) to "Giant's Hole" under the Observatory (*Phytol.* IV. p. 725); and Miss Atwood wrote in 1852 that she had discovered some, apparently from her description, in the same place. At one time I thought it had disappeared from St. Vincent's Rocks; but flowers were seen in 1889 and 1895, and so very likely it is there still. The plants that have

been reported as native on high rocks in Brockley Combe are, I suppose, the result of a similar introduction.

From time to time a cry is raised by anxious persons who write in the papers that "the beauteous Cheddar Pink has now well nigh disappeared from its accustomed haunts"; or that it "is threatened with immediate extinction." But these lamentations are beside the mark. Despite the quarrying, the regrettable traffic carried on by a few villagers, and the general plucking by visitors to the Gorge, this fine species is so securely located on the highest cliffs, from whence a supply of seed is yearly shed downward, that there is in reality no ground for regarding it as in danger of extirpation.

On the Continent *D. cæsius* is not common, but occurs locally throughout the region of Central Europe from eastern France and Belgium to Croatia and Roumania. Mr. F. N. Williams in *Nature Notes*, 1890, p. 109, gives vernacular names for the plant in every country where it is found.

[*D. plumarius* L.

Alien. Cloister walls, Bristol, June, 1840; *Geo. Rogers*.]

#### [GYPSOPHILA.]

[*Gypsophila porrigens* Boiss.

An alien from the East; remarkable for its shaggy clothing of long, black, glandular hairs, and long, wavy, hair-like pedicels.

**G.** St. Philip's, Bristol, on city refuse; a few plants yearly from 1902 to 1906, and a large number in 1909. By the new convent buildings at Henleaze, 1906.

**S.** On a tip at St. Anne's, Brislington, 1905-6; *C. Wall*. Portishead Station-yard, 1905-7 and two plants there in 1911.]

[*G. paniculata* L.

An alien well known in gardens. On the old colliery heap between Kingswood and Hanham already several times mentioned as a station for casuals, and on the wall of a pig-sty adjoining; yearly from 1884 to 1889. The heap has since been levelled and the ground enclosed. St. Philip's Marsh, July, 1911.]

#### SAPONARIA Linn.

##### 130. *S. officinalis* L. *Soapwort*.

Denizen; or possibly native in one or two localities; in others it must be admitted to be a relic of cultivation. Rare. July to September.

**G.** Bank of the river Avon below Hanham Weir, and at one or two points nearer Crew's Hole; now scarce. Border of field near Hanham Abbots, 1880; *W. E. Green*. Roadside hedge under Stoke Park near Frenchay! in flower there Nov. 1, 1907; *Miss Roper*. Between Upton Cheyney and Lansdown; *F. Samson*. Roadside quarry below Hawkesbury Upton.

**S.** Bank of Avon near St. Anne's Park, opposite Conham. A large patch on a bank of the "Cut" opposite Albion Place, Cumberland Road, 1889 and subsequently. "In plenty at Publow on the left bank of the Chew, in a meadow below the bridge; all the plants with double flowers. An introduction here, doubtless, but now looking thoroughly naturalized"; *D. Fry*. Several plants in a roadside hedge between Pensford and Whitley Batch, 1887; and at Lord's Wood, Houndstreet; *D. Fry*. In Litton parish; *R. V. Sherring*. In a hedge-row by cottages on the Clevedon Road, under Cadbury Camp, with single flowers, Aug. 1901. A quantity (double-flowered) by the sidings in Portishead



Station-yard, 1905-7. Woodborough; *F. A. Knight*. Abundant on sandbanks along the coast between Brean and Burnham, and on hedgebanks close to the town, mostly with double flowers. But Thos. Clark gathered single-flowered specimens at Berrow in 1824, and some can still be found thereabout. Nunney; *Rev. S. Laing*. Gurney Slade; laneside above the mill in Slade Bottom. Beckington (with double flowers); *H. F. Parsons* in *Fl. Som.* Wells, with single flowers in 1878; not seen since, and the spot is now built over; *Miss Livett*. Abundant for some yards in a lane east of Dunkerton Church. Casual from time to time near Bath, but rarely.

### 131. *S. Vaccaria* L.

**Alien.** A cornfield weed throughout Eastern and Central Europe. With us it is a frequent waste-ground annual. June, July.

**G.** Watercress Farm, Baptist Mills, 1911; *I. W. Evans*. Stapleton Road Gas Works; *Mrs. Sandwith*. On dredgings deposited in the Black Rock Quarry, 1883-4. Waste ground, Redland, 1888. In a vetch-field near Combe Dingle, 1896; *L. W. Rogers*. "Holly Gess" near Kingswood, 1880 to 1885. On made ground in St. Philip's Marsh, yearly for a long period; especially abundant on the peaty soil thrown up from a great depth when foundations for the City Electricity Works were excavated. Allotment ground at Patchway. Railway ballast at Pilning, 1897-8.

**S.** On a refuse tip at St. Anne's, Brislington, 1905; *C. Wall*. Keynsham, 1911! *W. H. Pullin*. Waste ground, Clevedon; *Miss F. M. Ruddock*. Portishead Station-yard, 1902-8. Twerton; *S. T. Dunn*. Bathampton Station, 1905; *Miss Peck*.

This species had a place in the eighth and ninth editions of the *Lon. Cat. of British Plants*, but has been omitted from the tenth. It is a plant that will be always with us, without doubt, and no good end can be served by ignoring its presence.

## SILENE *Linn.*

### 132. *S. anglica* L. *English Catchfly*.

**Colonist.** Of rare occurrence among grain crops in small quantity, and as a casual on city rubbish. June to September.

**G.** A few plants on rubbish in St. Philip's Marsh, 1889. Reported thence also in 1890 by *J. F. Hopkins*.

**S.** In one cornfield at Failand, persistent but restricted to one part of the field; *D. Williams*. On cultivated ground at Yatton, sparingly. Two stations near Bath are given in *Suppl. Fl. Bathon.* Top of Bathford Hill, 1850; *Herb. Flower*. Fields on Kingsdown, Bath, 1884; *J. G. Baker*.

[**VAR. *quinquevulnera* L.** A rare casual.

**S.** In quantity among mowing grass in a sandy field between Burnham and the Light-houses, 1885-7; *D. Fry*. Several plants by Portishead Station in 1903. Old quarry near Twerton; *S. T. Dunn*.]

**133. *S. Cucubalus* Wibel. *S. inflata* Sm. *Bladder Campion*.**

Native; on field borders and by waysides, rather common and widely distributed. June to August.

**VAR. *puberula* Jord.**

A slight variation, rough with hairs and with a downy calyx. It is really not infrequent although but few notes have been jotted down.

**G.** On quarry rubble at Kingsweston. Hedgerow near Upton Cheyney.

**S.** Roadside between Abbotsleigh and Haberfield Bridge. Plentiful towards the bottom of Tickenham Hill. Bleadon Hill; *C. Bucknall*. Nightingale Valley, Weston-in-Gordano; and Dinder near Wells; *Miss Livett*.

In addition to the pubescent form there are other slight variations, of which one from Milbury Heath with a greenish-yellow calyx, analogous to but not so conspicuous as that mentioned under *S. maritima*, is the most noteworthy. And a hybrid with the next species is on record from the Mendips by the Rev. E. F. Linton. This I have not seen.

At its best the Bladder Campion is quite an ornamental plant. The large clumps that grow among the fennel towards Tickenham would doubtless become still handsomer in rock-work cultivation, and yet might not make the show of bloom that renders *S. maritima* so attractive in a garden.

**134. *S. maritima* Withering. *Sea Campion*.**

Native; on the Channel shore and on Mendip. Rather rare and local: unknown in Gloucestershire. June to August.

**S.** Clevedon; on the sea-bank a mile below the Church Hill. Weston-super-Mare; now scarce. Brean Down, and sparingly towards Burnham on the dunes. About old lead-workings at Charterhouse-on-Mendip, and also at those near Priddy. By the streamlet in Long Bottom under Blackdown, in no great quantity. More abundant on old mining ground between Shipham and Rowberrow.

First record for Somerset:—"Brent Down et supra Nightstone prope Weston supra Mare, copiose." *Herb. Dillenius* (1726).

The presence inland of this maritime species, together with *Erodium maritimum* and one or two others, carries our thoughts back to the age when, according to geologists, the Mendip Hills were islands in the sea.

I have seen in Guernsey (and I am told it grows in Dorset and on the Lancashire coast) a variation in which the customary suffused dull purple with darker veins of the calyx is replaced by a pale shade of greenish-yellow. Mr. Marquand, who introduced me to this conspicuous and attractive form, said it was frequent in the island. If not already christened it should bear his name. There appears to be nothing like it in the Bristol district.

**135. *S. noctiflora* L. *Night-flowering Catchfly*.**

Colonist or Casual; in cultivated fields and waste ground. Very rare.

June to September.



**G.** On a heap of colliery rubble between Kingswood and Hanham, 1882-4 : probably derived from grain-screenings and now lost. About two dozen plants on a filled-in portion of St. Philip's Marsh, Bristol, 1909 and 1910. Cultivation on the western slope of Ivory Hill. Cornfield on Milbury Heath towards Tytherington, 1910 ! *Miss Roper*. Five or six plants among corn by the Gloucester road towards Falfield ; *C. Bucknall*.

**S.** On cultivated land between Stockwood and Keynsham, associated with *Galium tricornis*, *Anagallis cærulea*, etc. *D. Fry*. Two or three plants in Portishead Station-yard, 1906 ! *Miss Livett*. One by the Avon near the gas-works at Bath, 1894 ; and one near the same spot in 1895.

Easily passed over on account of its general resemblance to *Lychnis vespertina*. Another reason for its being sometimes overlooked is that the flowers remain closed in daylight. But, as pointed out by Newbould, *S. noctiflora* can be readily distinguished by the long teeth and network of the sepals, and its extreme viscosity. And it may be added that, as observed by Babington and Syme, another distinctive character is furnished by the capsules, which in *S. noctiflora* open with six spreading recurved teeth, while in *S. vespertina* the teeth are ten, suberect or only slightly spreading.

**[S. conoidea L.]**

Alien. Abundant in St. Philip's Marsh, G. on made ground, 1904. A few plants there in the following June, and fewer still in 1909. Several by sidings at Portishead Dock, 1906 ! *Miss Livett*.]

**[S. dichotoma Ehrh.]**

Alien. A Continental weed of cultivation, of more frequent occurrence than the other strangers of this genus, not only about Bristol but in other parts of the country. The specimens may not be numerous, but they are usually large—two to three feet high.

**G.** In plenty at "Holly Gess" near Kingswood, 1880 to 1885. Two or three fine plants near Temple Meads Station from 1891 onward to 1906, and others in St. Philip's Marsh on many occasions, and as lately as 1911. Waste ground by the Stapleton Road Gas Works, 1911 ! *Mrs. Sandwith*.

**S.** Waste ground, Clevedon, 1903 ; *Miss F. M. Ruddock*. Under Cadbury Camp, 1897 ; *Miss Roper*. Portishead Station-yard, 1906-1910. Old quarry ground near Twerton, 1903 ; *Miss Martin*. Casual at Wells, 1888 ; *Miss Livett*.]

**[S. muscipula L.]**

Alien. Several plants on waste ground at St. Philip's, 1904 and 1905.]

## LYCHNIS Linn.

### 136. *L. Flos-cuculi* L. *Ragged Robin*.

Native ; in wet meadows and ditches, common in both counties.

May to July.

### 137. *L. alba* Mill. *L. vespertina* Sibth. *White Campion*.

Colonist ; about the borders of grass-fields, by roadsides and on sandy wastes. Common and generally distributed. On the coast it is more abundant than the next species.

June to September.

### 138. *L. dioica* L. *L. diurna* Sibth. *Red Campion*.

*Red Butchers* ; West Glouc.

Native ; in woods, on banks and in moist shady places, very common.

May and June ; but flowers are often seen in September.

The variety with white flowers is rare, but plants of it have been observed in a damp wood bordering the lane that leads from Abbotsleigh to the Tan-pits; and it is reported from Wells by Miss Livett. Examples of both *L. alba* and of the present species occur occasionally with pale pink flowers. Such plants look like intermediates of hybrid origin. In some of these the characters of one supposed parent may predominate; and in some those of the other. The venation of the calyx and its teeth will help to show their respective relations. In all, the stamiferous flowers appear to be more abundant than those with pistils.

### 139. *L. Githago* Scop. *Corn-Cockle*.

Colonist; chiefly on arable land, but not common, and occurs sparingly.

June to August.

**G.** Formerly in cornfields by Shirehampton and Stapleton. On waste ground at St. Philip's, Bristol; and about Avonmouth Docks. Cornfield west of Winterbourne Church, 1907, in some quantity. Between Hambrook and Stoke Gifford, 1902; *H. J. Wadlow*. Field of vetches on Ivory Hill, 1906. Among clover near Alderley.

**S.** Abundant on a refuse tip at St. Anne's, Brislington, 1905; *C. Wall*. Among sown grasses at Failand. Rare about Yatton and Claverham; *Miss Winter* and *W. E. Green*. Among vetches near Portbury! *R. Brown*. Backwell, Nailsea and Clevedon; *D. Fry*. Abundant in some years at Walton-in-Gordano; *W. E. Green*. In a field of green fodder at Wraxall, 1906.

"Cockle is a common and hurtful weede in our Corne, . . . the place of his growing and time of his flowring, . . . what hurt it doth among Corne, the spoil unto bread as well in colour, taste and unholsomnes, is better knowne than desired." *Gerard*, pp. 926-7 (1570). It is well that we have cleaner farming in our time. For it has been shown that toxic effects have resulted from Cockle seeds when baked with flour into bread; or when roasted with corn in preparing a coffee substitute.

## SAGINA Linn.

### 140. *S. procumbens* L. *Procumbent Pearlwort*.

Native; on damp walls, neglected paths, and waste ground where shaded.

Very common.

May to September.

I have seen the var. *spinosa* Gibs. from Sand Bay, Kewstoke; gathered by Mrs. Gregory.

### 141. *S. apetala* Ard. *Small-flowered Pearlwort*.

Native; on wall-tops, roadside paths, garden walks etc. in full exposure. Rather common, and apparently more general with us than in the North.

May to September.

**G.** Woodland Road, Clifton, 1897. About the rubble walls in Glen Frome. Wall in Westbury village. Roadside at Staple Hill. Paths at Frenchay; *H. J. Wadlow*.



**S.** Ashton Park, on bare spots from which the turf had been removed. Chinks in a wall by Rownham Ferry. Coping of footpath close to Brislington Station. Frequent about Keynsham and Brislington; *D. Fry*. In the main street of Portishead, near the Church. Ashcombe, near Weston-super-Mare. Shipham on Mendip. Lyncombe, Bath; *J. G. Baker*. "Common" at Bath; *Fl. Bathon*. Cranmore, Witham and Shepton Mallet; *Fl. Som*.

Apart from its mode of growth, the glandular hairs on the upper part of the stems, pedicels and calyces seem very distinctive of this species. These hairs, however, are not so conspicuous in the dried-up state in which the plant is so often found.

**142. *S. ciliata* Fries.** *Fries' small-flowered Pearlwort.*

Native; in the short turf of hillsides, particularly where rock outcrops, and in dry pastures where there is not much soil; both on sandstone and limestone but preferring the former. I have often met with it on arable land elsewhere, but never in this district. Rare, though probably it is sometimes overlooked or unrecognized, especially in time of drought. June, July.

**G.** Clifton, 1870; *Rev. W. W. Spicer*. On Clifton Down, associated with *Ornithopus perpusillus* over a small area of exposed sandstone grit, and not there extending on to the neighbouring limestone. But on the Downs, between Pembroke Road and the Gully, in some seasons it is abundant. Brandon Hill, first observed in 1894 by Mr. David Fry. Rodway Hill near Mangotsfield, and Siston Common, in plenty. Glen Frome, Stapleton; *A. Leipner*. Bare spots where rock is exposed on Frenchay Common.

**S.** Abundant in a rocky sandstone pasture between Keynsham and Brislington. On the Mendip plateau above Ebbor Rocks. On the southern slopes of Brean Down.

"One good character separating *S. ciliata* from *apetala* is that the sepals are always closely adpressed to the capsule, not ultimately spreading—cruciform fashion—as in both *apetala* and *procumbens*. Hooker describes *ciliata* as being 'glandular-pubescent,' but Syme says that all the specimens he had seen were glabrous, which is the case with our Brislington plant. All the expanded flowers which I noticed were, as they are said often to be, apetalous." *D. Fry*.

**143. *S. maritima* Don.** *Sea Pearlwort.*

Native; on sand, gravel or rubble-walling; only along the coast. Rare and local. May to August.

**G.** By the Avon at the Lamplighters, and on gravelly ground below the Ferry. Seabank and shingle at and below New Passage!

**S.** Sand-hills near the sea at Burnham and Berrow, and along the roadside at Brean. Frequent about Weston-super-Mare, whence (and from Burnham) the var. or form *debilis* Jord., with prostrate stems radiating from the root, has been several times recorded. Gatherings so labelled were forwarded to the Botanical Exchange Club in 1902 and 1906, and were reported on as "correct."

**[S. subulata Presl.**

"Sandy fields between Weston-super-Mare and Uphill"; *Flora of Weston* by St. Brody. An unconfirmed statement; which, in the absence of specimens, it would not be wise to accept. But it should be remembered that, since his time, the correctness of some other of Dr. St. Brody's most unlikely records for North Somerset has been proved; and therefore we are now the more disposed to give him credence for the remainder. And the plant is cited, on Coleman's authority, for vice-co. 6 in *Topogr. Bot.* I have long held the opinion that it must be present in our district, where we have much suitable ground corresponding to that on which it occurs in South Somerset, etc. It will surely be found eventually.]

**144. S. nodosa Fenzl. White Sandwort. Knotted Spurrey.**

Native; in wet depressions among the coast sand-hills, in swamps and on the peat moors. Rather rare and local. In the maritime localities the plant is very glandular-hairy (*S. glandulosa* Bess.). July, August.

**G.** Boggy ground on the western margin of Siston Common, scattered in fair quantity! Aug. 1906; *C. Bucknall*. First record for West Gloucester. But it is quite possible that this is Johnson's locality or one of them, for he rode that way on his journey from Bath through Bristol in 1634.

**S.** Failand, in boggy ground in the valley above the Tan-pits; *D. Fry*. Kewstoke Sands. Moist pasture near the Station, Weston-super-Mare! *Miss Roper*. Sands between Weston-super-Mare and Brean Down, and thence to Burnham. On dry limestone soil near Holwell; *Rev. S. Laing*. Peat moors on the southern limit of the district; less common than formerly, I think.

"*Saxifraga palustris alsinefolia*. *Small water Saxifrage*. It grows on Boggs about Bath"; *Johnson, Merc. Bot.* p. 19 (1634).

**HONKENEJA Ehrh.****145. H. peploides Ehrh. Arenaria peploides L. Sea Purslane.**

Native; on the sandy shores of the Bristol Channel, from Clevedon to Burnham, becoming more plentiful as one goes westward towards the blue water. June to September.

**ALSINE Wahl.****146. A. verna Bartl. Vernal Sandwort.**

Native; on the Mendip Hills, rare and local.

May to August.

**S.** The Mineries near Priddy on Mendip; and on similar ground at Charterhouse. "Rocky pasture at the extreme north-east of Cheddar Gorge"; *Dr. C. E. Moss*. It grows on ancient spoil-heaps about the smelting places of Roman lead works. All the old records for the plant in North Somerset refer, in fact, to the Mineries, or that vicinity. Mr. Flower's description of a habitat was often singularly wide and indefinite, and his reference—"Mendip Hills below Banwell, abundant 1846," is a good example of his practice in that respect. Specimens in the Stephens Herbarium are labelled "near the Castle of Comfort" which inn is a mile and a half north of the Mineries; while Pen Hill, whence the plant is recorded in *Fl. Som.* by the Rev. E. S. Marshall, is the same distance to the south-east.

It is a little curious that this species is also found on spoil-banks of lead



mines in other parts of the country. In the *Flora of West Yorks*, for instance, there are several such stations for it; and Mr. Arnold Lees, writing in another place on the flora of Grassington Woods, tells of "the vernal leadwort" straggling over an old Roman spoil-slope. In *Baker's North Yorkshire* it is said to be especially plentiful about the lead mines of the western dales. I do not find any reason suggested for this preference other than the rather shallow supposition (*Engl. Bot.* p. 110) that the plant has a peculiar power of resisting metallic poisons, and so can flourish on the refuse heaps of mines where other vegetation is unable to subsist. Should the idea have an actual foundation it seems that another Caryophyll might take honours as a poison resister. Both Murray and Arnold Lees speak of the special abundance in which *Cerastium triviale* grows on heaps of débris about the lead mines in Somerset and Yorkshire.

**147. A. tenuifolia** Wahl. *Fine-leaved Sandwort.*

Native on a limestone hill or promontory and on oolite: introduced elsewhere. Rare. May to July.

The plant has a great liking for railway ballast, not only in this district but in other parts of the kingdom. The only personal record in the *Flora of Somerset* rests on a railway; and all those in the *Flora of Herefordshire* are from railways and railway stations, thus showing the method of introduction.

**G.** St. Vincent's Rocks above the new well-house, June, 1773; *Sir Jos. Banks* in *Herb. Brit. Mus.* St. Vincent's Rocks; *Dr. Dyer* in *Bot. G.* (1805). Foot of St. Vincent's Rocks; *Rootsey* in *Shiercliff's Guide*, 1828. Under St. Vincent's Rocks; *Stephens, Cat.* 1835. Near Cornwallis Grove, Clifton; *Miss M. Atwood* in *Sweete*. Not now known at Clifton. In short turf about exposed rock on Penpole Point; first found by the late Dr. Thwaites, whose specimens dated 1843 are in the Flower Herbarium, and in that of H. C. Watson at Kew. After that the plant seems to have been entirely lost sight of until 1884 when it was rediscovered by Mr. H. Fisher in fair quantity on the slopes of the Point. On the Midland line to the N.E. of Mangotsfield Station, July, 1897 and June, 1898. Stony roadside outside Pilning Station, many fine plants in July, 1897. Stinchcombe Hill; *St. Brody* in *Journ. Bot.* IV. (1866) p. 121.

**S.** Near Bath; *Mr. Walker* in *Fl. Bathon.* In his *Supplement*, however, Babington states that "the introduction of this plant into the Bath list is probably a mistake." But we now have plenty of evidence connecting it with Bath. Odd Down, Bath, 1849; *R. Withers* in *Herb. Boswell.* Odd Down, 1859; *Herb. Flower.* Rush Hill, near Twerton, 1849; *Herb. Flower.* Top of Bathwick Hill, a mile south of Bath, 1886! *A. E. Burr.* On a retaining wall of the G.W.R. embankment at Newton St. Loe below Bath, close to the river-bank, abundant in 1897! *D. Fry.*

The Odd Down locality has been searched in recent years without result; nevertheless the plant may still be there.

**ARENARIA** Linn.**148. A. trinervia** L. *Three-nerved Sandwort.*

Native; in damp and shady places; common.

May and June.

**149. A. serpyllifolia** L. *Thyme-leaved Sandwort.*

Native; on walls, banks, and in dry spots throughout the district. Very common.

All Summer and Autumn.

**150. A. leptoclados** Gussone.

Native; in dry places—wall-tops and the like—and often fine and abundant in tillage fields. Rather common.

Summer and Autumn.

**G.** Henleaze Lane, 1900. Patchway. Winterbourne, in a field of Sainfoin and elsewhere. Frampton Cotterell. Potato-field at Little Stoke, 1898. Arable land between Tockington and Almondsbury. Walls at Bitton, Wyck and Dodington, 1900 to 1909.

**S.** Clevedon; *D. Fry*. Cited from Clevedon by Prof. Babington in the *Flora of Cambridgeshire (Appendix)*; rather an odd place to find a Somerset record. Plentiful in a cultivated field east of Walton-by-Clevedon, 1909. Keynsham, Saltford, Burnet, Lansdown, Hallatrow, etc.; apparently more prevalent than the last species; *D. Fry*. By Pensford railway station, 1890. Abundant in a field of vetches at Stanton Drew, June, 1887; the ripe capsules perfectly flexible, notwithstanding the drought that had then prevailed for several weeks; *D. Fry*. Roadsides between Worle and Weston-super-Mare. Priddy; *Fl. Som.* Brean Down, near the landing place. Abundant on the Bath oolite; *Rev. E. S. Marshall*.

I have ventured to give effect to my opinion that this is quite distinct from *A. serpyllifolia*. At one time Mr. David Fry and I gave a good deal of attention to these plants, and we both came to the same conclusion. The two often grow together, yet no intermediates or connecting links between them have come under our notice; their characters in our view remain fixed and constant. In botanical matters Prof. Babington was well in advance of his time, and although many good botanists remained unconvinced by his representation that *leptoclados* was more than a variety, his opinion on that debatable point is now very generally adopted both here and on the Continent. The three latest lists of British plants—*viz.*, that compiled by Mr. Claridge Druce; the British Museum Seed-Plant list; and the *Lon. Cat. ed. 10*; all give this plant specific rank.

The above list of localities might be lengthened with ease.

**STELLARIA** Linn.**151. S. media** Villars. *Chickweed.*

Native. A common weed in many kinds of soil and situation throughout the district, and very variable in habit and luxuriance. It flowers all the year round.



VAR. *Boræana* Jord.

**G.** Shingle on the Severn shore below New Passage. Quarry rubble by the Avon at Conham.

**S.** By the railway near Rownham Ferry. Old spoil-heap at Ashton Gate. Knowle. Pensford. Brean Down! *Mrs. Gregory*. Crook's Peak; Brean; and Berrow; *Rev. E. S. Marshall*. Burnham, 1888.

This variety flowers early and soon withers. Probably it is often overlooked.

152. *S. neglecta* Weihe.

Native. A perennial chickweed with pedicels and calyx hairy; seeds acutely tubercled. Chiefly on the shady hedgebanks of hollow lanes. Rather rare, but as it has been a good deal confounded with *umbrosa* this plant may eventually prove to be more frequent than is at present supposed.

April to June.

**G.** Bank of Avon above Sea Mills. Lane leading from Kingsweston to the marsh-lands. Bitton and Upton Cheyney. Tortworth.

**S.** Markham Bottom. Hedgebanks off Yandy Lane near the "Wild Country." Barrow Gurney. Plentiful in moist lanes along the Chew Valley between Pensford and Compton Dando. East Harptree.

VAR. *umbrosa* Opiz.

Differs only from *neglecta* by having the calyx and pedicels quite glabrous. Partial to shady hedge-bottoms where the herbage is luxuriant, yet occurring also on the open borders of pasture-land. Classified as "rare" by Dr. Boswell in *Engl. Bot.*, but with us it is quite abundant in many places. Mr. Fry writes of it as "very prevalent throughout North Somerset." April to June.

**G.** Hedgebanks between Sneyd Park and Sea Mills; and towards Shirehampton Park. Between Warmley and Bitton. Doynton. Pucklechurch. Frequent about Charfield, Tortworth Park and Chipping Sodbury.

**S.** Abbotsleigh, Bishopsworth, Pensford, Stanton Drew, Brislington, Stockwood and Keynsham; *D. Fry*. Woollard and Compton Dando. Queen Charlton. Norton Malreward. Stowey. Englishcombe. Combe Hay. Hallatrow and Nailsea; *D. Fry*. Walton-by-Clevedon; *D. Fry*. Lane leading from the Clapton Road on to Walton Drove. Between Winscombe and Banwell. Bath; *Herb. Boswell (Fl. Som.)*.

These plants sometimes grow together. They are more robust than the common chickweed, with larger flowers (especially *umbrosa*). They produce "autumnal barren shoots very similar to those of *S. nemorum* which remain through the winter and do not flower until the following spring." *Syme*. As already remarked, there has been much confusion between the two, caused in part by insufficient descriptions. Babington does not mention the glabrous character of *umbrosa*, and his description of *neglecta* does not correspond with that of Weihe. *Syme*, in *Engl. Bot.*, speaks of *umbrosa* as having "pedicels

almost glabrous" while the latest pronouncement by the Rev. E. S. Marshall is that they should be *quite glabrous*.

Mr. Marshall has also a var. *decipiens* = the *neglecta* of Babington; stated to have *bluntly* tubercled seeds and a habit nearer to *S. media*. Mr. Bucknall and I can only find rounded tubercles on immature seeds; the ripe ones invariably appear to have acute tubercles.

**153. *S. Holostea* L. Greater Stitchwort.**

Native; nearly everywhere in hedges and thickets, but I think less abundant on limestone. April to June.

Like some other species of this order it reflowers occasionally very late in the year. There were blossoms between Brentry and Charlton in December, 1906.

**154. *S. palustris* Retz. *S. glauca* With. Glaucous Marsh Stitchwort.**

Native; only on marsh-lands and peat towards the southern limit of the district. Rare and local. May to July.

**S.** Ditch between Highbridge and Burnham; *H. S. Thompson*. Abundant on some parts of the peat moor, especially near Ashcot, Shapwick and Edington Road railway stations; by no means evenly distributed. I have seen it in the bogs at South Wraxall, but that locality is in Wilts.

**155. *S. graminea* L. Lesser Stitchwort.**

Native; in open grassy and bushy places, thickets and hedgebanks. Common wherever suitable localities exist, in all parts of the district: *e.g.* Clifton Down, the Avon valley above and below Bristol, open spaces on the skirt of Leigh Wood, Glen Frome, etc. May to August.

The flowers of this species and *S. palustris* appear to be dimorphic. One form has petals much longer than the sepals and is hermaphrodite. The other is marked by its petals barely equal to or shorter than the sepals, dwarf stamens, imperfect pollen, and very prominent styles. The two forms commonly occur in patches that are easily discerned and recognized by the larger or smaller flowers.

**156. *S. uliginosa* Murray. Bog Stitchwort.**

Native; in bogs and swamps. Common on the Somerset side of the district, particularly about the Mendip Hills, where there are many boggy spots on the higher ground. But in West Gloucester, where bog is almost unknown, the plant is naturally less frequent. May and June

**MALACHIUM Fries.**

**157. *M. aquaticum* Fr. Great Chickweed.**

Native; in and by water, rather common. My estimate of the frequency of this species has enlarged since the issue of the first edition of this book. A better knowledge of the district leads me to own that Dr. Swete's notice in the *Flora Bristolensis* was quite warrantable. July to October.



**G.** Abundant by the river Avon, especially along the bank from Crew's Hole to Hanham. Banks of the Frome near Stapleton, at Moorend, and near Frampton Cotterell. Wet ditches north of Lyde Green. Yate Lower Common. Hedge-bottoms at Hall End, near Wickwar. Rockhampton. Hill. Sheperdine. Oldbury-on-Severn. Common in ditches and wet places throughout the district; *Sweete*.

**S.** Stream-side at St. Anne's, Brislington. By the Malago near Lock's Mills. Plentiful near Keynsham and Saltford in several spots on the river-bank. Abundant along the Chew from Chew Magna to Stanton Drew, and at intervals down to Compton Dando; *D. Fry*. Portbury; abundant in marsh ditches behind the Church and Station. Walton-by-Clevedon. Weston-in-Gordano. Kenn Moor; *S.T. Dunn*. Boggy pastures about Max near Winscombe. Congresbury. Ditches near Bleadon; *H. S. Thompson*. Murdercombe, west of Mells. Knowle Moor and Tickenham Moor; *Miss Livett*. Draycott, Wedmore, and generally throughout the alluvial marsh-lands as far as and on the peat moors.

### CERASTIUM *Linn.*

**158. C. viscosum L.** *C. glomeratum* Thuill. *Broad-leaved Mouse-ear Chickweed.*

Native; on waste ground, wall-tops, and often on railway ballast. Very common, but not so general as the next species. April to September.

**159. C. triviale Link.** *Narrow-leaved Mouse-ear Chickweed.*

Native; in dry places on and under walls, in arable land and in mowing pastures; a universally diffused species. In flower nearly the whole year.

**VAR. holosteoides Fries.**

Rather plentiful in Shipham Bottom on Mendip, with the type. It forms little matted tufts near the streamlet that runs through the Bottom from Blackdown. First noticed and pointed out to me by Mr. Cedric Bucknall.

This variety is of tufted habit and low stature, the stems as a rule not exceeding a decimetre. Some of the specimens are quite glabrous, while in others the leaves bear a few scattered long hairs, entirely different in arrangement from the close pubescence of type *triviale*.

**160. C. semidecandrum L.** *Little Mouse-ear Chickweed.*

Native; on bare spots of the downs and hillsides (both limestone and sandstone), and sand-hills along the coast. Common; especially near the Channel. A sub-maritime species. April to June.

**G.** St. Vincent's Rocks, often under shelter of the public seats and by the sides of paths on the Observatory Hill. Clifton and Durdham Downs: first noticed on the Downs by Miss M. Atwood sixty years ago. Brandon Hill. Penpole Point. Kingsweston Down. In Glen Frome near Stapleton.

**S.** With *Mœnchia* near Keynsham. Stantonbury Hills. Sand Point and Kewstoke Bay. Uphill. Clevedon. Winterhead and Sidcot. Wavering Down and Crook's Peak. Sandford Hill, Shipham, Cheddar and elsewhere on Mendip. In several spots near Wells. Brean Down and Steep Holm. Abundant on the sands above high-water mark south of Weston-super-Mare; and still more so below Brean Down among the sand-hills all the way to Burnham and the mouth of the Brue.

### 161. *C. pumilum* Curtis.

Native; on rocky slopes, wall-tops and limestone rubble, rather rare and local. April to June.

**G.** St. Vincent's Rocks, both on the top of the cliff and on ledges below. Clifton Down, over Bridge Valley Road. Rocks and screes in the Gully by the Sea Walls. There is a good series of specimens from St. Vincent's Rocks in the Stephens Herbarium, with some interesting letters from Prof. Babington referring to the plant.

**S.** On a wall by the Avon under Leigh Wood. Rocks on Potter's Hill above Barrow Gurney at 650 ft. On the Court, Strawberry and Dial Hills, Clevedon; and at Weston-in-Gordano; *D. Fry*. Crook's Peak; *Rev. E. S. Marshall*. Field-walls at Sidcot; between Blackdown and Cheddar; and near the Mineries towards Ebbor and Wells. Fine plants by the roadside in Cheddar Gorge, 1889 and 1897. Bleadon, 1888; *H. S. Thompson*. By the road leading up to the some-time windmill on Worle Hill. At the extremity of the Swallow Cliff, Sand Point; very viscid. Stony ground on the hill above Birnbeck, Weston-super-Mare. Uphill, in great abundance all over the hill. Plentiful on the S.W. slopes of Brean Down. The Steep Holm, in plenty on rocks facing the south.

As a Bristol plant this is strictly a limestone species, whether near the sea or inland. I have never met with a specimen on any other formation. In luxuriance it varies greatly in successive seasons according as the month of April is dry and cold, or warm and rainy. In the former case, as the plant is always fully exposed to the sun it becomes dwarfed to an inch or little more, and but a small quantity develops. It is only once in four or five years that fine and characteristic specimens can be obtained: in a favourable Spring these are produced in abundance.

The colour of well-grown examples is dark green, tinged with some red and purple. The lower leaves have long hafts; they form a thin rosette and are fairly lasting. The flower stalk becomes *persistently* curved towards the top, and when the fruit stalk ultimately becomes erect this curve causes the capsule to form an obtuse angle with it. In *C. tetrandrum*, on the contrary, the less numerous lower leaves soon wither, the petals are smaller, and both fruit stalk and capsule become ultimately erect.

I fear *C. pumilum* cannot be regarded as an endemic species. Mr. Williams, in his "Revised List of the British Caryophyllaceæ," *Journ. Bot.* 1896, pp. 423-9, mentions that specimens gathered in Sicily and Sardinia closely



agree with our British plant; and I have myself seen exactly the same thing on rocks of the Eastern Pyrenees; at Aranjuez in Central Spain; and at Granada.

**162. C. tetrandrum** *Curtis.* Dark green or Four-cleft Mouse-ear Chickweed.

Native; another sub-maritime species of this genus. Rather common in the turf of our hillsides as well as in the shallow soil of barer spots; but much more plentiful on the sands of the sea-coast. When in blown sand it forms strong bushy plants that are long lived and continue late into the summer after other early annuals have seeded and passed away. May to September.

**G.** St. Vincent's Rocks, first noticed there by Dr. H. O. Stephens. Durdham Down; *Sweete*, etc. Brandon Hill, 1828; *Rootsey's list*. Still there in plenty, chiefly as the dwarf turf form. Sea Mills. Walls about Shirehampton; *T. B. Flower*. Siston Common. Frenchay Common.

**S.** Roman encampment, Leigh Woods. Barrow Hill; *Miss Roper*. Shroë in Kewstoke Bay. Golf links at Weston-super-Mare. Worle Hill. The Green Beach, Clevedon; *Miss Livett*. Sandford Hill and Burrington; *Mrs. Gregory*. Chelvey Batch and Backwell Hill. Hutton Combe; *W. B. Waterfall*. In plenty about the high ground at Uphill, and on Purn Hill above Bleadon. Crook's Peak; *Rev. E. S. Marshall*. Hillside above Axbridge, and high rocks in Cheddar Gorge. On the rocky slopes of Brean Down, and a dwarf form in the turf. An apetalous plant there also in 1898. Abundant on the sands near Brean, Berrow and Burnham. I have repeatedly seen both four-cleft and five-cleft flowers on the same plant.

**163. C. arvense** *L.* Field Chickweed.

Native; on limestone soil, very rare.

April to August.

**S.** Hillside above Loxton, on and about a ridge facing south, in seven or eight distinct spots extending nearly a hundred yards. Discovered by Mrs. E. S. Gregory in 1894. The plant was in full flower on May 1, 1896 when Mrs. Gregory conducted me to the place. It grows in unbroken turf of the hillside and is undoubtedly indigenous.

A second locality, on a high bank by the roadside leading from Portbury through the Charlton Estate, we owe to Miss Roper, who discovered it in May, 1900. Here the plant occurred in small quantity scattered over a few square yards. There is some fear of its having been destroyed by recent tree-felling at the spot.

### MOENCHIA *Ehrh.*

**164. M. quaternella** *Ehrh.* *M. erecta* Sm.

Native; confined to dry open hilly ground on sandstone (pennant), in two localities only. April to June.

**G.** Brandon Hill (no date); *Herb. Stephens*. But specimens from Dr. Stephens in the Watson Herbarium at Kew are dated 1846. Cited for West Gloucester in *Topogr. Bot.* on Dr. Thwaites' authority; no doubt from the

same place. Dr. Thwaites' list is stated by H. C. Watson to have been made on the first edition of the *London Catalogue*, published in 1844. Swete could not have been aware of the plant's existence at Bristol, as he does not mention it; so the probability is that it had become extinct by the time he wrote. I understand that when the site of the Blind Asylum near the top of Park Street was excavated, an enormous mass of earth, etc. was tipped on to the upper part of Brandon Hill, and with that material the present broad walk was constructed. It seems likely enough that the *Mœchia* was thus buried. No other locality for this species was known in the whole county until May, 1909, when Mr. C. Bucknall found it at Yate Common. It grows there in good quantity on the sides of a shallow gravelly pit.

**S.** Keynsham; *Herb. Stephens*. No date is attached to the specimens; but I imagine they would have been gathered about 1836 when Dr. Stephens published his list. Rediscovered within a mile of Keynsham in April, 1886 by Mr. David Fry. The plant exists in fair quantity over a small area and, as Mr. Fry remarked, "is associated with several species which appear, at least in our district, almost exclusively to affect sandstone formations; viz., *Ornithopus perpusillus*, *Scleranthus annuus*, *Sarothamnus* and *Myosotis versicolor*." One station is given in *Fl. Bathon*; viz., "By the roadside at Hinton; Dr. H. Gibbs," on which the Rev. L. Jenyns commented in his *Lecture on the Bath Flora* that "no one else seems to have met with it."

### SPERGULARIA *Prest. Buda Dum. = Lepigonum Wahl.*

#### 165. **S. rubra Pers.** *Field Sandwort-Spurrey.*

Native; in sandy and heathy places. Very rare. Quite unknown in North Somerset; although Watson, in *Topogr. Bot.* does not except it. The author of the *Flora of Somerset*, however, thinks it may be found north of the Parret. May to September.

**G.** Brandon Hill, very sparingly on the millstone grit, 1884; *D. Fry*. I saw three plants there in 1892. Rather plentiful on lias and alluvium by the side of the high road at Bitton; between the point at which it branches off to Upton Cheyney and that where the parish of North Stoke begins, 1886; *D. Fry*. There is a specimen from Bitton in the Jenyns Herbarium at Bath, with an undated letter from Canon Ellacombe who may have been first to notice the plant in his parish. In several spots on Trooper's Hill, 1896; *C. Bucknall*. I found some there in 1900. Formerly abundant on Rodway Hill near Mangotsfield: now beset by golfers. On the south side of Siston Common, 1898, 1904. On live rock in a lane going up to Bury Hill from the north of Winterbourne Down, 1908. The *Flore de France*, by Rouy and Foucaud, recognizes several segregates of this species separated by characters of small importance. Mr. Bucknall points out that some of our plants from Trooper's Hill and Siston Common agree well with the *Spergularia longipes* Rouy, in having long fruit-stalks 3-4 times exceeding the capsule, or nearly twice as long as they should be in type *rubra*.



**166. *S. salina* Presl.** *Lesser Sea Sandwort-Spurrey.*

Native; on sea-banks and muddy shores by the Channel. Rather common.  
All Summer.

**G.** On mud flats below Shirehampton, now scarce; and in similar spots north of Avonmouth.

**S.** In fair quantity at intervals from the mouth of the Axe at Brean Down to the Brue near Highbridge. Bank of the estuary near Woodspring Priory. Abundant below Clevedon about the sea-bank between the Pill and the "Gull House." "The short pedicels and smooth wingless seeds of the greater part of what was gathered seem to point to var. *media*"; *D. Fry*. In *media* the chief character is that most of the pedicels are shorter than the capsule; but the varieties run into one another, and some gatherings cannot be referred to either with any certainty.

VAR. *neglecta* Syme.

**G.** Avonmouth, on ground now enclosed, or included in the docks area. Not seen for some years.

**S.** Abundant about sea-banks near Wick St. Lawrence. Uphill salt-marsh; *Mrs. Gregory*. Channel shore at Brean and Burnham.

**167. *S. marginata* Kittel.** *Lepigonum marinum* Wahl. *Sea Sandwort-Spurrey.*

Native; abundant about the estuaries and in salt-marshes along the whole seaboard of the district; extending a long way up the inlets and tidal rivers.  
May to October, or later.

VAR. *glandulosa* Druce.

A great deal of our *marginata* is not typical. Syme says (*Eng. Bot.* p. 132)—"Whole plant glabrous." Many of ours, however, especially among the luxuriant patches found on mud-banks at the mouths of the Brue and Parret, are glandular-hairy in their upper parts. Briggs (*Fl. Plymouth*, p. 55) records the like from Devon and Cornwall, and Barrett from the coast of Dorset; while Townsend (*Fl. Hants*, ed. 2, p. 72), mentions a similar form from Brading Marsh. This glandular plant—unnamed until the last year or so—is no doubt frequent in the South and West of Britain and seems worthy of recognition.

It has been stated that seeds ripened at the end of July have a narrower winged margin than those produced in October, but that the same amount of glandular matter appears about the inflorescence of all the plants.

**SPERGULA** Linn.**168. *S. arvensis* L.** *Corn Spurrey.*

Native or colonist; occurring only as a weed in cultivated ground. Rather rare.  
June to September.

**G.** Frenchay; *H. J. Wadlow*. Cornfield west of Winterbourne Church, 1904 to 1911. Abundant in other fields nearer Winterbourne, 1909. Cultivation

at Frampton Cotterell, 1905. Field of mangolds at Milbury Heath, Nov. 1904. Stapleton and Horfield; *Swete*. Stone; *G. Webb*.

**S.** Bedminster; *Swete*, p. 33. St. Anne's, Brislington; abundant in a field and on a wall-top, 1886; *D. Fry*. Potato-field on Failand Farm, 1903; and in some other fields between Failand Hill and Pill during that autumn. Near Failand Church, 1903; *Miss Roper*. Fields on the coast between Portishead and the Nore, observed in several seasons and seemingly permanent. Walton-in-Gordano; *Miss Livett*. Sparingly in a garden at Yatton; *Miss Winter*. Clevedon; *W. E. Green*. Winscombe, 1887. Brean Down, 1889. Burnham; *D. Fry*. Cornfield near Houndstreet, 1905; *Miss Roper*. Field on Mendip between Draycott and Cheddar Gorge, at 700 ft.; *Rev. E. S. Marshall*. Common in arable fields on the Old Red Sandstone of the Mendips: not noticed on any of the calcareous soils of the district; *Dr. C. E. Moss*. Cultivated land between Wells and Glastonbury; and fields at Priddy on Mendip; *Fl. Som.* Mr. Murray has also one or two localities on the south-eastern margin of our district. "Cornfields near Bath"; *Fl. Bathon*.

### SCLERANTHUS *Linn.*

#### 169. **S. annuus** *L.* *Knapwell. Knaewell.*

Native; on hillsides where sandstone rock is exposed; and as a weed in poor light soils. Rare. June to August.

**G.** Brandon Hill; *G. H. K. Thwaites* in *Swete*. Still there; at least a dozen plants in 1892, and twenty in 1909. Abundant on the barer parts of Frenchay Common—sandstone; *H. J. Wadlow*. Fields near Dursley, Aug. 1864; *Herb. St. Brody*. I fear not permanent at Dursley, as no later observer mentions it.

**S.** Permanent as a weed in one field on Failand! *D. Williams*. On a dry slope where the pennant rock crops out, and also on some made ground near by, about a mile from Keynsham; rather plentiful in some seasons! *D. Fry*. In a cultivated field near Houndstreet! *Miss Roper*. Dry fields near Hutton; *St. Brody*. On the railway near Yatton Station! *W. E. Green*. And on the G.W.R. at Highbridge, July, 1888; *Harold S. Thompson*.

## MALVACEÆ.

### MALVA *Linn.*

#### 170. **M. moschata** *L.* *Musk Mallow.*

Native; in rough pastures and by sunny roadsides. Rather common and really too frequent to justify detailed localities. The lists here given might be considerably extended. July and August.



**G.** Still frequent by the railway under the Downs, from Hotwells to Shirehampton; as noted by Swete. Wayside hedgebanks about Horfield; *Swete*. Blaize Castle Woods. Glen Frome by Stapleton. Abundant on the coal-measures from Mangotsfield to Mooredon, and generally in the Frome valley about Winterbourne, Frampton Cotterell and Coalpit Heath. Ivory Hill. Yate Rocks; *Miss Roper*. Hillsley. Wotton-under-Edge. Wickwar.

**S.** Outskirts of Leigh Wood. Brislington. Keynsham. Whitechurch. Pensford. Stanton Drew. Stanton Wick. Featherbed Lane near Clutton. In several fields at Flax Bourton, and towards Bishopsworth. About Yatton and Tickenham. Plentiful in the country between Clevedon, Weston-in-Gordano and Portishead. Kewstoke and Milton, near Weston-super-Mare. Very fine in pastures above Draycott. Ebbor, Wookey, Mells and Chewton Mendip; *Fl. Som.*

I found in a field near Abbotsleigh, some years ago, a quantity of the very beautiful form with pure white flowers. And Miss Roper has it from Failand. Noticed also on Tytherington Hill.

Nearly the whole of our plants are the common British form—*laciniata* Lej.—with leaves all deeply divided into narrow segments. But there are a good many on oolitic hills to the north-east that have lower leaves roundish, entire; and these may come under the var. *heterophylla* Lej.

In some portions of the district the Musk Mallow is decidedly more common than *M. sylvestris*; and it grows in wilder—less artificial—localities. The latter species has a much greater liking for humanity. It exists chiefly near habitations, under walls and by roadsides about houses, where *M. moschata* rarely appears.

### 171. *M. sylvestris* L. Common Mallow.

Native; about field borders, roadsides and under walls. Common, and well distributed throughout the district. June to September.

#### VAR. *dasycarpa* Beck.

Waste ground, St. Philips, Bristol; Aug. 1906. "A plant in some respects approaching *M. nicaensis* Allioni, i.e. the hairy reticulate carpels; but differs from that species in shape of leaves and size of flowers." *E. G. Baker*.

#### VAR. *eriocarpa* Boissier.

Corn-mill refuse near Portishead Dock, North Somerset; July, 1906, and 1911.

Varieties based on whether some portion of the plant is hairy or glabrous are far from satisfactory, but this is more than a mere hairy-fruited form of *M. sylvestris*, the leaf outline and habit differing widely from the type. The description by Boissier in *Flora Orient.* i, p. 819, runs in part—"var.  $\gamma$ .—caule sæpius hirsuto, carpellis plus minusve tomentosus." Gussone (*Flora Sicula*) mentions this variety in his index, as if it had been found in Sicily, but he was evidently unacquainted with it. Mr. Druce tells me that it is not identical with the plant which he named *lasiocarpa*; *Fl. Berks*, p. 112. Barley from Smyrna is the probable source of introduction at Portishead.

Other alien Malvaceæ have been observed of late years on dock-sides and city refuse heaps at Bristol, and they will doubtless continue to appear from time to time. Several of them have been kindly named for me by Mr. Edm. G. Baker, F.L.S. of the Nat. Hist. Museum, South Kensington; but one striking variety of *sylvestris* could not be identified. It is a luxuriant plant of erect habit, reaching the height of 6 to 7 feet, and has leaves remarkably truncate at the base. Varies with white flowers. Abundant by the corn-mill at the north end of Portishead Station-yard for three seasons at least, 1904, -5, -6. "There is a similar plant in *Herb. Mus. Brit.* with truncate base to leaves, that was gathered near Berne by R. J. Shuttleworth." *E. G. Baker.*

**172. *M. rotundifolia* L.** Dwarf Mallow.

Native; in dry waste places, frequent.

June to September.

**G.** Under walls at the foot of Penpole Point, Shirehampton. In two of the cross lanes leading from Stapleton village to the river Frome. Glen Frome, 1850; *Herb. Cundall.* Hanham; *D. Fry.* Willsbridge near Bitton. Siston Common; *Miss Roper.* Plentiful along the land side of a shingly beach by the Severn below New Passage; and in a lane leading to the beach. By Winterbourne Church, and on a waste spot in the village. Tockington; *Miss Roper.* Tytherington. Plentiful under walls at Thornbury; *Misses Cundall.* Iron Acton. Rangeworthy.

**S.** Brislington; near the station and in two other spots. Lane side east of Keynsham. Saltford, Corston, North Stoke and Woollard; *D. Fry.* By farm buildings at Portbury. Abundant between Yatton and Kenn. About Clevedon in many places, and at Strode; *W. E. Green.* By Long Ashton Church. Weston-super-Mare, Hutton, Bleadon, Uphill and Brean Down; *Mrs. Gregory.* Churchill; *Fl. Som.* Rowberrow. Sidcot. Rodney Stoke. Burtle; *Herb. Clark.* Burnham. Easton and Knowle, near Wells; *Miss Livett.* There are two localities in *Fl. Bathon.* and its *Supp'.*, and I have seen the plant at Twerton; but the Rev. L. Jenyns, in his *Lecture on the Bath Flora*, regarded it as scarce in that neighbourhood.

**173. *M. parviflora* L.**

Alien. A native of the Mediterranean region now often found in Britain as a weed of waste ground where rubbish has been shot. It will almost certainly continue to spring from the cast-out refuse of our docks and warehouses.

Late Summer.

**G.** In October, 1900 there appeared a large patch by a new road through St. Philip's Marsh, where the plant continued in succeeding years. Abundant in the corner of a pasture above Combe Dingle, 1908-10. Wapping Wharf, Bristol Harbour, 1911.

**S.** Portishead Station-yard; 1904-10. In the disused part of an old quarry at Twerton, 1897, derived from barley-siftings; *S. T. Dunn.* I saw it there several years afterwards when Miss Martin took me to the place.



**174. *M. borealis* Wallm. *M. pusilla* Sm.**

Alien ; in the same category as the last, but has a more northern distribution. Mr. Dunn writes that it is becoming more and more noticed as a waste-ground plant in England, being introduced with grain. June to September.

**G.** Plentiful on made ground at St. Philip's, Bristol, 1902-7. A patch of small plants on waste ground between Combe Dingle and the Arbutus Walk, June, 1906.

**S.** At Twerton with the last species, 1897 ; *S. T. Dunn*.

**[*Hibiscus Trionum* L.**

Alien. A cornfield weed of Eastern Europe, which Mr. Dunn mentions as sometimes found in this country. I did not meet with it until October, 1906—two fine plants in a cabbage garden at Portishead. Refuse-tip at St. Anne's, Brislington ; one plant in 1907 and one in 1908. Wapping Wharf, Bristol Harbour, 1911.]

**ALTHÆA Linn.****175. *A. officinalis* L. *Marsh-Mallow*.**

Native ; in or by marsh ditches of the lowlands near tidal waters. Rare and local. August, September.

**G.** Formerly in a ditch by the old Lighthouse at Avonmouth. This clump was well known to many persons ; and, as it grew on the enclosed side of the ditch, could not be disturbed. It is probably one of the localities mentioned by Swete, (*Fl. Brist.* p. 16). There were also at Avonmouth a few plants in ditches adjacent to the rifle range that extended along the shore to the northward ; but the whole of that land has now been included in works for the Royal Edward Dock. Ditches, New Passage ; *Herb. St. Brody*. One plant by the railway between Avonmouth Docks and New Passage, 1905 ; *Miss Roper*. Shirehampton Marshes ; *Swete, loc. cit.* Not reported from Shirehampton in my time ; but stated to have been " pretty plentiful " in marshes below Penpole in 1836 ; *Trans. Bot. Soc. Lond.* p. 27.

**S.** Edge of a salt-marsh at Portishead, abundant. Formerly the plant covered a considerable area, and although much of it used to be cut down before flowering when mowing the meadow-grass, the remainder always bloomed conspicuously on a boundary bank. The position is now precarious in view of latter-day projects in aid of the unemployed ; but pleas for its protection on the margin of the new lake have been well received by the Corporation officials. In August, 1910, after the ground had been strongly fenced, the display of blossom was particularly fine. A few months later, unfortunately, much of the completed work was destroyed in a storm of exceptional violence and the site reduced to ruin. Ditchbank between Brean and Berrow, 1907 ; *Chas. Withers*. Two clumps in a ditch between South Brent and Mark, Aug. 1905 ; *C. Bucknall*. Brent ; *Winch add. New Bot. G.* pub. 1835. Near Burnham ; *J. Westcombe* in *Herb. Brit. Mus.* Ditch near Dunball, 1888 ; *H. S. Thompson*.

" Althea or marrish mallow. . . I have sene it growing in Somersetshire a myle from Welles towards ye Mere." *Turner, Herb. i, errata*, (1551).

*A. officinalis* affords a good example of the way in which some of our rare

plants are becoming scarcer and scarcer even if they do not altogether disappear. Our Avonmouth localities have been destroyed by the great dock extensions; and that at Portishead—long threatened—must soon go unless it be more efficiently protected. That this species can maintain itself well when not interfered with is shown by its strong growth at the latter place, and its permanence on the Brent lowlands. Still, it has become extinct both in Devon and Cornwall; and my friend Mr. Bowles Barrett reports that only one station now remains in the county of Dorset.

The country people are generally content to gather the common Mallow (*M. sylvestris*) for medicinal purposes, mistaking it for Marsh Mallow which has the more valuable demulcent and emollient properties—recognized in many countries from the earliest times. The root of *Althæa* is largely used to-day in Continental pharmacy; but in England its consumption has dwindled to quite a trifling amount.

### 176. *A. hirsuta* L.

Alien; very rare.

June and July.

**G.** Sparingly on Pur Down near Stapleton; *W. E. Green*. Mr. Green recorded his discovery in *Science Gossip*, 1877, p. 187; and described the plant as springing up around the stump of a beech tree that had been felled on the south side of the Down. A specimen in Mr. Edwin Wheeler's herbarium was gathered "near Pur Down, about 1880-2."

**S.** Spontaneous in an orchard belonging to Sir Edward Fry at Failand, 1894. It was considered to have been introduced with manure, and soon died out. Two or three plants on an embankment of the new road at Ashton Gate, 1906. Waste ground near Portishead Station, 1903 and 1905; *Miss Peck*. Avonside between Saltford and Newton Bridge, 1911; *Mrs. Dent Young*.

Mr. S. T. Dunn writes:—"Though a conspicuous plant, *A. hirsuta* was not recorded in Britain until 1792, and this causes it to be suspected as a recent introduction." Mr. C. E. Salmon has an article in *Journ. Bot.* 1902, in which he impartially examines the conditions, as to habitat and surroundings, of all the recorded occurrences of this plant in England.

### [*Abutilon Avicennæ* L.

Alien. A non-European genus, well known in horticulture for showy flowers and fine foliage.

**G.** Over a dozen plants on Wapping Wharf, Bristol Harbour, 1911! *F. Samson*.

Kerner describes a most interesting arrangement by which this plant provides for both insect- and self-fertilization.]

## LAVATERA Linn.

### 177. *L. arborea* L. *Tree Mallow*.

Native or denizen. Very possibly indigenous on islands in the Channel; the natural home being on maritime rocks. In other cases the great probability is that the plant has been thrown out from a cottage garden. It is often seen in cultivation near the sea and about the Mendip villages.

June to September.



"*Malva arborea marina nostras*. . . . In an island called Dinnie three miles from Kings Roade and five miles from Bristow." *Parkinson, Theatr.* p. 306 (1640). I am assured by friends who have landed at the Denny in recent years that there is now no trace of the Tree Mallow on the island.

Steep Holm, July, 1773; *Banks and Lightfoot*. Ditto, 6 mo. 4, 1832; *Thos. Clark*. Do. 1887; *T. B. Flower*. Do., on the north side; *J. C. Collins* in *New B. G. Suppl.*

Both Denny Island and Steep Holm are in the county of Bristol.

**S.** Sea-side, Portishead; Aug. 1849; *Herb. Cundall*. Clevedon, 1880; *W. E. Green*. In 1906 I saw several large bushes on the undercliff at Clevedon, in spots remote from gardens; but in that locality there is a general practice of throwing rubbish over the cliff. Woodspring and St. Thomas' Head, at the mouth of the river Wick; *T. F. Perkins* in 1877. Now extinct. Formerly on the rocks below houses at Weston-super-Mare. I saw a bush on Knightstone in 1875. Several fine old specimens in a long-abandoned quarry on Bleadon Hill; and some small ones on a roadside close by, 1910. Southern slope of Brean Down near the farmstead; no doubt derived from a neighbouring garden.

[*L. punctata Allioni*.

Alien. A native of the south-eastern Mediterranean region. Near the corn-mill by Portishead Dock, Aug. 1906.]

## TILIACEÆ.

### TILIA Linn.

#### 178. *T. europæa* L. *Common Lime tree. Linden.*

In plantations, parks and hedgerows, with no claim to be indigenous in the district. The favourite lime tree for planting. As it is not known to spring from seed in the way that other introduced trees and shrubs often do, no localities are given. July.

*T. europæa* L. and *T. intermedia* DC. are synonymous. Swete (*Fl. Brist.* p. 17) has treated them separately.

#### 179. *T. cordata* Mill. *Small-leaved Lime.*

Native; in old woods, very local. Although found very largely on Carboniferous Limestone it is not entirely restricted to that formation. July.

**G.** Cook's Folly Wood. In the rocky wood that skirts the Avon below Hanham, both above and below the old Spelter Works; on pennant sandstone. The wood thereabout is likely enough a remnant of the old Saxon Forest of Kingswood.

**S.** Abundant in Leigh Wood; in the coppiced portions as well as in that near the Roman Encampment, where some trees reach a height of 60 feet or more. Several small trees on Sandford Hill; *D. Fry*. Bourton Combe, sparingly. Wood between Rowberrow and Churchill; *Fl. Som.* Cheddar Wood.

It forms a large proportion of the underwood throughout the King's Wood, near Yatton, and the other woods—Ball Wood and Col. Long's Woods—adjoining. In Mr. Murray's account (*Fl. Som.* p. 64), it looks as if three distinct localities were indicated; but they all refer without doubt to this range of woodland that overlooks Yatton and Congresbury.

As a result of coppicing, trees of any size are rare. The largest I have met with stands on the skirt of King's Wood towards Cleeve. At three feet from the ground it measured ten feet in girth.

H. C. Watson regarded this as a doubtful native; but the extent and manner of its occurrence render it impossible to resist the conviction that it is indigenous in our aboriginal woods.

In some parts of the country this Lime is often seen planted in parks and avenues. I have not observed that to be the case about Bristol, where *T. europæa* is a general favourite.

As happens with some other trees when coppiced, the strong stump-shoots of *T. cordata*, during the first year or two, bear abnormal leaves. The difference in area, outline and texture between these stump-shoot leaves and the ordinary foliage is so great that the former would hardly be recognized if the conditions that produced them were not known. Many of them are 5 to 7 inches in length and nearly as broad. They several times exceed their petioles, in contradiction to one of the main characters that distinguish the species. There is, too, an exaggeration of toothing and of basal one-sidedness, besides the attenuation into a long point which makes the leaf longer than broad, whereas the length of a typical adult leaf is commonly less than the breadth. One may assume, I think, that this is an example of hypertrophy due to an excessive supply of water and food-material under pressure. The stump, after lopping, becomes so surcharged with sap that many adventitious buds form along the vitally active cambium layer; and these buds, stimulated by the concentrated nutriment available, develop into vigorous shoots bearing abnormal leaves. As the shoots lengthen year by year the hypertrophy diminishes until the bush once more attains full stature, and it then bears only typical foliage. The Aspen (*Populus tremula*) affords another remarkable instance of this leaf-variation under similar treatment. It has been said that the small-leaved Lime produces fruit but rarely, and a walk through our woods might support that idea. The fact is, however, that this tree does not flower until of good age, and that it is often coppiced before reaching maturity. Older trees, as well as coppice-bushes that escape the usual fate of underwood for a sufficient time, flower freely and bear plenty of fruit.

Larvæ of the rare *Platypteryx harpagula* = *Drepana sicula* feed upon the leaves in Leigh Wood, which is almost the only station known for them in Britain. At the instigation of an entomologist friend at a distance, I once spent the best part of a day in King's Wood hunting for that caterpillar; but nothing I collected gave him satisfaction.

[*T. platyphylla* Scop. *T. grandifolia* Ehrh. *Large-leaved Lime*.  
Planted; but not commonly. Anyone unable to obtain indigenous specimens from the Wye Valley at Symonds Yat or the Great Doward, can get some for reference in Stoke Park Road, close to the Downs; where a number of trees stand along the south-eastern boundary of the Stoke House property.]



## HYPERICACEÆ.

## HYPERICUM Linn.

180. *H. calycinum* L. *Large-flowered St. John's Wort.*

Alien; no doubt originally planted in every case, but naturalized in Leigh Wood; in the railway cutting near Bourton; at Clevedon and in Tortworth Park. Mr. Fry has noted it also by a roadside near Stowey.

This species is believed not to ripen seed anywhere in this country, but to spread and maintain itself by root-extension only. It travels far and rapidly in a favourable position.

181. *H. Androsæmum* L. *Tutsan.*

Native; in woods and thickets, rather frequent but very thinly distributed. There is rarely more than a plant or two at one spot. June to August.

**G.** "Clymenon Italarum . . . *Ang. Tutsan*, . . . *Angliæ sylvis lucis et nemoribus præsertim Bristoiæ et Gloscestræ conterminis.*"—*Lobel. Adv.* p. 280 (1570). "The authors of *Stirp. Advers. Nova* do affirme that Androsæmon groweth by Bristow in England in S. Vincentes Rockes and woody Cleves beyond the water. But if Androsæmon be Tutsan or Parke leaves it groweth plentifully in woodes and parkes in the west partes of England."—*Lyte*, p. 66 (1578). "Androsæmum magnum. In a wood by St. Vincent's Rocks nigh Bristow."—*Johnson, Merc. Bot.* p. 19 (1634). The plant still exists in Cook's Folly Wood, and that may well be the place that was visited by these bygone botanists. Glen Frome, Stapleton. Berwick Wood and Haw Wood, Henbury. Blaize Castle; *Herb. Powell*. Conham Wood; *Dr. H. O. Stephens*. Ashen Plain Wood, Dursley; *Miss Gingell*.

**S.** Leigh Woods. Hedgebank at Bourton; *Misses Cundall*. Failand Hill; *D. Williams*. Here and there in the woods at Portishead, and along the ridge above Weston-in-Gordano. Ledges of rock on the coast near Walton-by-Clevedon. The Rectory Wood, Wraxall. In the King's Wood and Ball Wood by Yatton and Congresbury. Near Keynsham; by the brook between Pensford and Stanton Drew; and on hedgebanks at the latter village; *D. Fry*. By water between Pensford and Ursleigh Hill; and on both sides of a lane leading from the hill to Publow; *Misses Cundall*. Outskirts of Cheddar Wood, and lane below the wood; *Rev. E. S. Marshall*. Churchill Batch; Shipham; and Butcombe; *Fl. Som.* On Blackdown above Rowberrow Bottom, at 850 feet. Between Edford and Leigh-on-Mendip. On the slopes of Mendip near Blagdon, and the Harptrees. At Wookey, and several other places near Wells; *Miss Livett*. Railford Wood near Whatley; *Rev. S. Laing*. Woods, not uncommon; *Fl. Bathon*.

[*H. elatum* Ait. An ornamental shrub, found rarely on unenclosed ground, as at Worle, and Max near Winscombe. It scarcely deserves mention in this work.]

[*H. hircinum* L. Another ornamental shrub much like the last species; but smaller, with deciduous sepals and a goatly smell. Very persistent in a few congenial spots where it has been at some time planted.]

**S.** Well established in several places on the Court Hill, Clevedon; doubtless planted there many years ago by a former owner. Old wall near the church in Winscombe; *Miss Livett*. Long known by the Lox Yeo river; and I have seen it extending along the bank of a mill-pool towards Max for 50 yards or so. First reported to me thence by Mr. W. B. Waterfall. Banwell Hill. An escape from a garden at Rodney Stoke, and so established on a limestone wall by the roadside for some distance.]

**182. *H. quadrangulum* L. *H. tetrapterum* Fries. Square-stemmed *St. John's Wort*.**

Native; on ditchbanks and in other moist places. Rather common, but less so than *H. perforatum*. July, August.

**183. *H. perforatum* L. Common *St. John's Wort*.**

Native; on dry banks, poor pastures and open woodland. Very common. July to September.

**184. *H. maculatum* Crantz. *H. dubium* Leers. Imperforate *St. John's Wort*.**

Native; on grassy and bushy ground fully exposed. Rare.

July to September.

**G.** St. Vincent's Rocks; *T. B. Flower*. Stapleton, 1846; *G. H. K. Thwaites*. On a grassy and bushy slope to the N. W. of Ivory Hill. About a dozen plants by the side of a green lane north of the railway between Winterbourne and Coalpit Heath. In a lane leading from Wotton Hill to North Nibley! *C. Bucknall*. On the lower edge of Folly Wood, east of Dursley! Found at Dursley in 1865 by Dr. St. Brody.

**S.** Leigh Woods; *T. B. Flower*. Edge of a wood near Yatton; *Miss Winter*. Hampton Wood, and in the valley between Batheaston and Swainswick; *Fl. Bathon*. In a wood on the left of the road to Brass Knocker; *Add. Fl. Bathon*. Brass Knocker Wood, Bath; *R. Withers in Herb. Brit. Mus.* Woods behind the Brass Knocker, Bath, Aug. 1840; *Herb. Flower*. "*H. dubium* grows with *H. perforatum* in a grassy and bushy place under a wall, not far from the station of *Thesium* on the edge of Hampton Down;" *D. Fry*.

Mr. Murray, in *Fl. Som.* says he had a note "Frequent about Frome," but the authority had been omitted or forgotten. I hear from the Rev. S. Laing that he finds this species constantly near Whatley, a little way from Frome.

**185. *H. humifusum* L. Trailing *St. John's Wort*.**

Native; on commons and in open woodland. Frequent, but very thinly distributed. There are seldom more than one or two plants at a place.

July to September.

**G.** Conham Wood; *Swete, Fl.* Side of a cart track leading towards Hanham Abbots from the Avonside quarries. Laneside near Downend. Upper side of Siston Common. Patchway; *Miss Roper*. Hillocks on Sodbury Common. Monk's Wood below Henley Hill, Cold Ashton. Peak Down near Dursley.

**S.** St. Anne's Wood, Brislington; *H. O. Stephens in Swete*. Leigh Woods, in several spots. In rough pasture on Failand Hill. More plentiful than usual on pennant about the *Mænchia* ground near Keynsham. Backwell Hill.



Harteliff Rocks; *Miss Roper*. Coast turf between Clevedon and Walton Bay. Near Congresbury; *D. Fry*. Skirt of the wood on Worlebury Hill near Weston-super-Mare, 1849; *Herb. Cundall*. Weston-super-Mare; *Miss Livett*. Rocky pasture on Mendip above Cheddar. Blackdown; *Mrs. Gregory*. Pen Hill near Wells; *Miss Livett*. The plant has no place in *Fl. Bathon*.

**186. *H. hirsutum* L.** *Hairy St. John's Wort.*

Native; in open woods and bushy spots, showing preference for limestone soil. Common. July, August.

**G.** Kingsweston, and on the skirt of Shirehampton Park at the Sea Mills end. The Avon valley above Bristol, near Conham and Hanham Weir. Between Siston and Pucklechurch. In many places about Alveston, Almondsbury and Winterbourne. Codrington. Wotton-under-Edge, Nibley and Dursley. Wickwar. Plentiful in woods about Berkeley.

**S.** Leigh Woods, plentiful in the northern portions after cutting of the underwood. Failand Hill. Charlton Woods, Portbury. Keynsham. Norton Malreward. In the Chew valley at Woollard and Compton Dando. Stanton Drew, and Featherbed Lane that runs towards Clutton; *D. Fry*. Between Portishead and Weston-in-Gordano. Walton; *W. E. Green*. Scarce about Clevedon; *Miss Livett*. Cleeve, and the borders of King's Wood, Yatton. Field hedgerows and old grassy lanes between Hallatrow and Hinton Blewett; and about Litton and Chewton Mendip. Southern slopes of Mendip above Cheddar and Draycott. Yailey near Wells; *Miss Livett*. Common; *Fl. Bathon*.

I once met with a family group of this with five other *Hypericums* all growing together on a bit of sunny open ground in Leigh Wood. These plants, however, are not known to hybridize.

There are some peculiar features connected with the distribution of *H. hirsutum* in various counties. On referring to local "Floras" it appears that while rare in Middlesex it is common in Kent. "Not very common" in Shropshire, but possibly the commonest of the genus in Herefordshire. Although in Mid Somerset "by far the most common species"; and "generally distributed" in Dorset; yet it becomes very rare indeed in S. Devon and E. Cornwall, only two localities being known within twelve miles of Plymouth.

The earliest record for Britain is a local one:—"Androsæmum magnum. . . . In Anglia aestate superiore, prope Bristoiam. In Vincentii præruptis et sylvis trans flumen." *Lobel. Adv. Nova*, p. 173 (1570).

**187. *H. montanum* L.** *Mountain St. John's Wort.*

Native; in dry bushy places, chiefly on limestone and oolite. Local, but frequent about Bristol. July and August.

**G.** Upon St. Vincent's Rock, near Bristol; *Ray, Syn.* ed. III, p. 343 (1724). Still there, and on the cliffs of the Great Quarry, Clifton Down. Kingsweston Hill; *Herb. Powell*. Crew's Hole and Conham; *H. O. Stephens* in *Swete*. On the hill above Wotton-under-Edge.

**S.** Rocks under Leigh Woods and in Nightingale Valley. Failand; *E. Wheeler*. In one spot on Failand Hill; *D. Williams*. Near Portishead, and along the ridge as far as Walton-in-Gordano and Clevedon. On the northern end of Worle Hill, over Kewstoke, and more sparingly on rocks towards the other extremity nearer Birnbeck. Tickenham Hill; *D. Fry*. Rocky slopes above Cheddar and in the Gorge. Hutton Combe. Brean Down. Steep Holm, 1890.

Earliest British records:—"Androsæmum Matthioli, Matthiolus his Tutsan . . . About Bristow and Bath."—*Parkinson, Theatr.* p. 577 (1640).

"Androsæmum Campoclarense. Elegant broad-leav'd imperforate St. John's Wort. On St. Vincent's Rock near Bristol."—*Camden's Britannia*, ed. 2 (1695).

**188. *H. pulchrum* L.** *Small Upright St. John's Wort.*

Native; on heathy and furzy commons and sunny, bush-covered banks; very common. June to August.

An abundant and beautiful plant: not in the least particular as to soil, so long as the situation—well drained and open—is right. Thus we have it on the limestone of our Downs; at Cook's Folly on sandstone; and in plenty on the coal-measures, both north and south. Unmentioned in *Fl. Bathon*.

**189. *H. elodes* L.** *Marsh St. John's Wort.*

Native; in bogs, extremely rare.

July and August.

**G.** Not known to exist in the district or in the whole county of Gloucester until discovered in a small bit of bog, within a mile or so of Mangotsfield, by Mr. C. Withers in 1892. I must not indicate the locality more precisely; as, although the plant looks vigorous and continues in fair quantity, its whole area is hardly larger than a dining-room table. Reported also by Mrs. Dent Young from "a boggy spot by the Bath Road near Warmley;" a station which I have not yet been able to confirm.

**S.** "Burtle and Glastonbury Moors"; *Sole* in *Collinson's Hist.* "Towards the eastern end of the moor," 1856; *Thos. Clark*. "Turf-moor about a mile east of Ashcot Railway Station," 1863; *Herb. Clark*.

I could never find it on our peat moors, nor could the author of the *Flora of Somerset*; who, when living near Glastonbury, made intimate acquaintance with the marsh-land vegetation close at hand. No evidence of the plant's occurrence since Clark's time came to hand before July, 1910, when Miss Winifred Mather sent me specimens gathered "near Ashcot Station," quite possibly from Clark's old locality.

I see in the *Geogr. Distrib. of Vegetation in Somerset (Bath and Bridgwater District)*, by C. E. Moss, M.Sc. that *H. elodes* has a place among the "local, occasional species" of the peat bogs, on the same footing as *Cnicus pratensis*, *Carex disticha* and *C. rostrata*, all of which are quite abundant. But Mr. Moss points out—and it is clearly apparent—the great difficulty of now finding a primitive plant association on these moors owing to the operations of turf-cutters during many years. And if, as seems probable, this plant does not reappear among aquatics that spring up in the abandoned turf-cuttings after a deep original surface layer has been removed, there can be little chance of its continuance in North Somerset for any lengthened period.



## ACERACEÆ.

## ACER Linn.

190. *A. campestre* L. *Maple.*

Native; at least in Leigh Wood, where are many trees of good size—up to 50 feet. Common in hedgerows, and especially abundant on the lias at Clutton, Chew Magna, Stanton Drew, Whitechurch etc. It is not until late October, when its pale golden-yellow tinted leaves are contrasted against darker hues of autumnal foliage, that we realize how common the maple is in our older hedges.

May and June.

Syme, in *Eng. Bot.*, says this tree is rarely above 20 feet high; and his commentator adds that a tree in Kent “allowed to grow freely” measured 12 to 14 feet! Our Leigh Wood examples, then, should be worth looking at.

There are two forms or varieties; one downy-fruited (*hebecarpum* DC.), and the other glabrous (*leiocarpum* Wallr.). Records are not plentiful, but they seem to show that both forms are well distributed throughout the country. With us I believe the smooth-fruited one to be the more frequent.

191. *A. Pseudo-platanus* L. *Sycamore.*

Alien; in woods, hedges and plantations. Common and completely naturalized, springing readily from self-sown seed in every favourable spot. Still, it has no claim to be considered indigenous, for it seems to have been introduced in the sixteenth century and was a rarity in the reign of Elizabeth. Parkinson wrote, in 1640, “The great broad leaved Maple . . . is no where found wilde or naturall in our Land that I can learne, but onely planted in Orchards or walkes for the shadowes sake.”

A number of remarkably large and handsome Sycamores stand on the outskirts of Ston Easton, where at one time the tree must have been a favourite.

## GERANIACEÆ.

## GERANIUM Linn.

192. *G. phæum* L. *Dusky Crane's Bill.*

Alien; usually on garden rubbish-heaps and the like, or by water, established in one or two places; rare. June and July.

**G.** Between Sea Mills and Shirehampton, rare, 1868, *Rev. W. W. Spicer* in *Herb. B. Nat. Soc.* Gathered there also by Mr. E. Wheeler in July, 1870; but has not been reported lately. Hillsley; *W. A. Harford*. By a stream at Alderley, near Wotton-under-Edge; *H. J. Charbonnier*. Banks above Alderley; *W. E. Loxton*. Several small plants in a pasture near Alderley New Mills; *V. R. Perkins*. *G. phæum* was planted in several spots about Wickwar some 60 years

ago by the Rev. Mr. Everest, at that time Rector, and the plant still grows about West End, Wickwar; *Mrs. Woodford*.

**S.** One or two plants as outcasts at Abbotsleigh, 1886; *J. F. Hopkins*. Bank of the brook at Long Ashton; and at Wrington; *Dr. Rogers*, in *Stephens Cat.* (1835). Wood between Wrington and Langford, 1910; *D. Williams*. Brislington, 1909; *Miss Edmonds*. Naturalized about Stockwood, sparingly, *Swete, Fl.* Probably now extinct. On rubbish near Hutton Court, where it continued several years but was of garden origin; *Mrs. Gregory*. Some plants by water in a little dell at Charterhouse-on-Mendip, S.E. of Blackdown! *Miss Roper*.

"To call it an outcast from a garden is easy enough, but it is not a plant that would ordinarily be cultivated, as, from its sombre character, it would not appeal to many people. The advocates of the castaway theory may reply:—'Precisely, that is our point: when it comes into flower it is a disappointment, and is therefore promptly hustled off to the refuse heap.'"—*Hulme*.

It is difficult to understand why *G. phæum* is not a well-distributed native of these islands unless the agency of some special insect is concerned in fertilization. A pale-flowered form, that differs in no other respect, abounds in the southern subalpine regions of Central Europe, in company with yarrow, coltsfoot, hazel and other ubiquitous British species. In Tyrol and Carinthia this is by far the commonest geranium, flourishing alike in warm sheltered valleys side by side with maize and pumpkins, and at elevations of 4–6,000 feet among the dolomitic mountains of San Martino and the Brenner. To the westward it diminishes, and finds a limit in Dauphiny and the Pyrenees, where it becomes exclusively montane.

**193. *G. striatum* L. *G. versicolor* L. Pencilled Geranium.**

Alien; thoroughly established in at least two spots. May to August.

**S.** In the lane leading from the high road to Bourton Combe; at least a dozen clumps along the hedgebanks, associated with *Petasites fragrans* and *Doronicum Pardalianches*. Known there for thirty years at least. Some strong plants by a laneside between Long Ashton and Failand! *Miss Roper*. Formerly about the Palace grounds at Wells in Lord Arthur Hervey's time—a survival; *Miss Livett*.

**194. *G. pratense* L. Meadow Crane's Bill.**

Native. A showy plant by roadsides, and around edges of grass meadows, especially near water. Well distributed throughout the district with the exception of a belt along the coast where it is practically unknown. I have no note for any village near the Channel other than Kewstoke; and *Miss Livett* tells me that she has never met with it near Clevedon nor at Weston-super-Mare. As regards Somerset *Mr. Murray* states that although common in the north of the county the plant is very rare in the west. As might be expected, so attractive a wild flower is scarce in the near vicinity of our city. June to August.

**G.** Ashley Hill, 1879; *E. Wheeler*. Filton, 1880; *W. E. Green*. It still grows in the railway cutting between the two stations. Bank of Avon near Crew's



Hole and Conham; *Foster* and *Thwaites* in *Swete*. I have seen it below Hanham. In the great withy-bed by the Boyd at Bitton, and elsewhere in that parish. Chipping Sodbury. Tortworth. Roadsides between Nibley and Charfield, and between the latter place and Damery Bridge. Dursley. On both sides of the way in old grassy lanes near St. Aldan's Well, Pucklechurch, and in the adjacent field-hedges. In many hedgebottoms and grassy roadsides about Wapley, Westerleigh, Codrington, Dyrham, Wickwar and Hawkesbury; and common generally in the tract of country lying northward of the county boundary near Cold Ashton.

**S.** In Brislington parish between the village and Fox's Wood. Keynsham; *Swete, Fl.* It grows near the lock and also lower down the river. In great abundance on both sides of the road between Keynsham and Queen Charlton; *D. Fry.* Border of field near Hengrove House, Knowle. On the Portishead road a little west of Abbotsleigh. To the south of Long Ashton and plentiful along the course of the Land-Yeo stream by Flax Bourton and Wraxall, on both banks of the brook and on hedgebanks near by. In several spots to the eastward of Whitechurch. Saltford. Burnet. Stanton Drew. Dundry. Under Stantonbury Hill. North Stoke: the churchyard there was full of the plant in 1886. Backwell and Brockley; *D. Fry.* Kewstoke; *T. F. Perkins.* Between Axbridge and Cheddar; *W. F. Miller.* Draycott. Hedgebanks between Hallatrow, Litton and Hinton Blewett. East and West Harptree, Compton Martin etc., July, 1900. Radford. Paulton. Abundant in the south-eastern corner of the district, about Frome, Great Elm, Midsomer Norton etc. Wookey and Wells; *Miss Livett.* Common in pastures; *Fl. Bathon.*

With pure white flowers between Flax Bourton and Wraxall; *J. W. Eves.*

Those who wish to feast their eyes on this handsomest of British wild flowers in full abundance amid attractive surroundings should take the road from Pucklechurch to Dyrham at the middle of July, when all plant life is in its prime.

The word "Culverkeys" has long been a puzzle to writers on the subject of plant-names. It first appears in some rather ridiculous lines on Angling by John Dennys of Pucklechurch in this district, which are quoted with approval by Izaak Walton, but attributed by him to John Davors. One stanza ends:—

"Purple Narcissus, like the morning rayes,  
Pale Ganderglas and azure Culverkayes."

Numerous applications have been suggested; but why should not those commentators be right who argue that the last-named flower may well have been the Meadow Crane's Bill; inasmuch as it is azure, the keys or fruits resemble culvers' feet, and there is an abundance of it in the meadows surrounding John Dennys' native village—ancient Pucklechurch? Some support to this view is given by the Rev. H. Friend, who states that the Dove's-foot Crane's Bill has been called Culver-foot. *Aquilegia* or Columbine is considered to be Culverkeys by the author of "A Mendip Valley"; but that flower is certainly not *azure*. The Century—; the Encyclopædic—; and Murray's New English Dictionary, all indicate the Wild Hyacinth or Blue-bell (*Scilla nutans*) as likely

to be the true plant, and the last-named work says the blue-bell is still known in Somerset as "Culverkey." The word, however, is not mentioned in the *Flora of Somerset*, whose author gave a good deal of attention to local plant-names.

**[G. Endressi Gay.**

Alien. A handsome plant from the Pyrenees, closely allied to *G. sylvaticum*, especially to the form of that species described in Babington's *Manual* as having small rose-coloured flowers and stems very decidedly hairy. A large patch of it appeared on the skirt of Leigh Wood in 1903. The spot is a grassy roadside not far from the Police Station; and is not unlikely to be buried under road-metal or cut up by the builder at an early date. Up to the present, however, the plant has continued to spread and do well, in spite of an invasion by Gout-weed which now disputes the site.

It has been met with, semi-naturalized, once before in this country, at Halford, Craven Arms, in some plenty a few years ago.

In *Journ. Bot.* 1910, p. 258, this Geranium is said to grow "in waste places between Clifton and Bristol"; but I believe the station above described is the only one we have.]

**195. *G. sanguineum* L. *Bloody Crane's Bill.***

Native; on limestone cliffs and banks. Very rare. June to August.

**G.** Still plentiful about St. Vincent's Rocks, Clifton, but becoming restricted to the more inaccessible ledges. Noted there by Sir Joseph Banks in 1767; and by Banks and Lightfoot in June, 1773. In the Gully by Sea Walls, rather sparingly among bushes in one spot, but known there for very many years. Rocks a few feet above the railway at the upper end of the Great Quarry, and in one or two other spots near the river-bank under the Downs. According to Mr. Flower and Dr. Swete it formerly extended as far down as Cook's Folly.

**S.** On rocks below Leigh Woods on the Somerset side of the Avon, July, 1835; *Miss J. S. Powell*. Ditto; *E. Lees* in *New B. G. Suppl.* pub. 1837. Do. 1844; *Dr. Young* in *Herb. Watson*. Do. *Swete, Fl.* pub. 1854. Do. 1859; *Herb. Flower*. I saw it on rocks between Rownham Ferry and the Suspension Bridge in 1882, but have no more recent note. I regret being unable to give a definite answer to Mr. Murray's inquiry in *Fl. Som.* as to the present existence of the plant. Walton-by-Clevedon; *Miss F. M. Ruddock* and *W. E. Green*. That spot has since been built upon. Brockley Combe; *W. B. Waterfall*. Sparingly on the southern side of Brean Down; *Fl. Som.* I saw a little there in 1883. The upper rocks in Ebbor Gorge on Mendip, 6 mo. 23, 1840 and in 1859; *Herb. Clark*. Recorded thence later by J. G. Baker, F.R.S.; and in 1885 by Miss Livett, who saw several strong plants away from the beaten track, and thought they were in no danger.

Earliest record for Britain:—"Geranium hæmatodes sive sanguinale. *Red or bloody Cranes-bill*. It grows about S. Vincent's Rock nigh Bristow." *Johnson, Merc. Bot.* p. 38 (1634).

**196. *G. pyrenaicum* Burm. fil. *Mountain Crane's Bill.***

Native; or perhaps a denizen in this district. Still rare in Gloucestershire, but evidently spreading: its area is far wider than formerly. May to August.

**G.** Brandon Hill; Mr. D. Fry has seen a specimen gathered by his brothers in 1843, together with examples of several other plants long since lost from that locality. Bitton, 1886, in considerable quantity; a first record for West Gloucester; *D. Fry*. Abundant near Bitton Station in 1910. A large plant in



an Avonside quarry under the Downs was first noticed in 1892; thereafter in 1899, 1902-7 the quantity much increased. Opposite the "Salutation," Henbury, 1906; *Miss V. Bishop*. A few plants close to the new Filton railway-station in 1906. Abundant in a mowing pasture near Frenchay, 1906 and 1910. Between Sodbury and Cross Hands; *C. Bucknall*. Roadsides at Swineford in profusion, even on the edge of the footpath; *Misses Cundall*. Just there the county boundary comes down to the Avon: possibly the plant occurs on both sides of it.

**S.** Plentiful in a cultivated field near Abbotsleigh, 1878. Near Keynsham, in great abundance on the G.W.R. embankment that crosses Keynsham Hams, and by the line nearer Fox's Wood. Kelston, Corston, and Burnet, in several places; *D. Fry*. In plenty behind the cloth-mills at Twerton, and by the Avon below Twerton. Hedgebank in the lane leading from Cadbury to Walton Drove. Dial Hill, Clevedon; *Mrs. Lainson*. Clevedon; *W. E. Green*. Lane leading from Barrow Gurney Church on to the high ground. Weston-super-Mare, at various times. By the quarry at Uphill. Berrow; *D. Fry*. Claverton, South Stoke, and Midford; *D. Fry*. It grows along the roadside nearly all the way from Glasshouse Farm to Hinton Charterhouse. Some fine plants in hedgebanks between Barrow Hill and Pennyquick Bottom; *D. Fry*. Plentiful in many spots between Englishcombe and Combe Hay. Bank between the railway and canal at Bathampton. Bathwick; Batheaston; and not infrequent south of Bath; *S. T. Dunn*. Between Wells and Wookey, 1839; *Herb. Clark*. In several places between Wookey and Wookey Hole, 1898-1900. In a churchyard at Wells; *W. B. Waterfall*. Plentiful in one place at Whatley; *Rev. S. Laing*.

A comparison of these records with those published in my earlier *Flora* will show how rapidly *G. pyrenaicum* has spread during the last generation: the large increase being not entirely due to a more perfect examination of the area. This is most strikingly apparent in the Bath district; where, in 1834, the *Fl. Bathon.* had but one locality, and that not an observation of the author. As Mr. Murray remarks (*Fl. Som.* p. 67), the plant seems "to possess neither useful properties nor sufficient beauty to have been intentionally introduced."

**197. *G. molle* L.** *Dove's-foot Crane's Bill.*

Native; in waste places, fields and pastures; very common.

Spring and Summer.

The form with very pale purplish flowers on Rodway Hill near Mangotsfield.

With pure white flowers, and the foliage also paler, as is usual in such a variety, by the roadside near Mooredon; under a wall on the south of Weston-super-Mare, and scattered freely in sandy fields at Kewstoke Bay; on Claverton Down near Bath; and a large patch on a roadside near Rodney Stoke, 1905-7! *Misses Cundall*.

**198. *G. rotundifolium* L.** *Soft Round-leaved Crane's Bill.*

Native; on and under old walls, and at the foot of warm hedgebanks, loving sunshine and shelter. Locally common. While unknown in South Somerset

and East Gloucester, it is peculiarly abundant about Bristol. The highest altitude observed for it has been under 400 feet. June and July ; but flowering on into November in a mild Autumn.

**G.** St. Vincent's Rocks, and below the Downs here and there along the railway to Sea Mills and Shirehampton. Around the base of Penpole Point. For many years in a grassy spot under a wall at the top of Elm Lane, Redland. On and under the rubble sandstone walls in Glen Frome near Stapleton, Fishponds and Frenchay ; and on pennant rubble from the quarries. Downend ; Hambrook ; and Moored. About Mangotsfield Junction. Almondsbury. For about 50 yards along a hedgebank on the Gloucester Road, between Rudgway and Alveston (new) Church. Quarry, Old Down, Tockington ; *Miss Roper*. Tortworth and Wickwar, which is our northern limit as far as present knowledge goes.

**S.** Along the railway under Leigh Woods opposite Clifton. Plentiful by the Abbotsleigh Road under the wall of Ashton Park. In several spots towards Haberfield Bridge and Portbury, and about that village. Portishead ; *Mrs. Lainson*. On the Congresbury and Wrington side of Yatton. On a warm hedgebank at St. Anne's, Brislington ; and another near Dr. Fox's Asylum. By the Bath road between Keynsham and Saltford. On the Wells Road between Knowle and Whitchurch. Occurs abundantly between Saltford and Burnet, and from there to Stantonbury ; *D. Fry*. On walls and by roadsides in Mells village, and towards Great Elm. Not rare west of Frome ; *H. F. Parsons*. North Stoke and Weston near Bath. Twerton Hill. Combe Hay. Midford Hill. Abundant on old walls around Bath ; *Fl. Bathon*. A very pretty small form grows on exposed slopes about the old quarries on Claverton Down, above Bathampton.

First British record :—"Habitat in muris, tectis et pascuis, circa Bath et Bristol copiose ;" . . . *Hudson, Fl. Angl.* i, p. 265 (1762).

### 199. *G. pusillum* L. *Small-flowered Crane's Bill.*

Native ; on roadsides, waste sandy spots, and cultivated land. Rare : possibly the scarcest in the Bristol district of the native species of this genus. Being inconspicuous, it may be sometimes overlooked. I have known it confounded with both *dissectum* and *molle*. May to August, or later.

**G.** St. Vincent's Rocks ; and Crew's Hole ; *Swete, Fl.* Not noticed of late years. By the green in Shirehampton village, 1885. Combe Hill ; and among sainfoin near Winterbourne Church ; *C. Bucknall*. In a field of mangolds on Milbury Heath, plentiful, Nov. 1904. Under a roadside wall between Iron Acton and Rangeworthy, 1908 !

**S.** Bedminster ; *Swete, Fl.* In rough pasture on pennant between Brislington and Keynsham ; a small quantity only in 1886 ; *D. Fry*. Hangstone Hill, Clevedon ! *D. Fry*. On Nyeland, near Draycott, 1892. Plentiful on sandy waste ground between Burnham and Berrow ; pointed out to me in 1888 by Mr. D. Fry. Still there in 1909 ; and in Berrow churchyard. On the high ground between Sand Point and Woodspring Priory, June, 1892. This is doubtless the locality reported by Mr. Fry in *Fl. Som.* Kewstoke Bay, 1898. Brean



Down; *Mrs. Gregory*. Rocky ground on Tor Hill, Wells; *Miss Livett*. Combe Down, Bath, 1848; *Herb. Flower*. Bath, 1866; *Herb. Jenyns*. The Rev. L. Jenyns wrote that it was not common about Bath.

**200. *G. dissectum* L.** *Jagged-leaved Crane's Bill.*

Native; in pastures and waste places. Very common. May to September.

**201. *G. columbinum* L.** *Long-stalked Crane's Bill.*

Native; chiefly on slopes of our limestone hills, sometimes on hedgebanks, and but rarely in the lowlands or on cultivated ground. Within these limitations, rather common.

June to October, or later; as for instance on Publow Hill Nov. 2, 1902; and on Mendip Nov. 14, 1906.

**G.** St. Vincent's Rocks (noted there by Withering in 1793); and along the rocky ground and railway near the river as far as Sea Mills and Shirehampton. Combe Down near Henbury. Kingsweston; *Miss Powell*. On a bit of undisturbed ground in Glen Frome near Stapleton. Tytherington Hill. Yate Rocks; *Miss Roper*. Dursley, by the roadside on the top of Breakheart Hill.

**S.** Very sparingly on Bedminster Down, 1892-4. Belmont Hill and Failand; *Miss Roper*. Side of road leading from Pensford to Whitley Batch; Publow Hill; Ursleigh Hill; and between there and Queen Charlton; *D. Fry*. Dry slopes above Compton Dando. Open ground along the ridge between Portishead and Clevedon. West Town and Backwell Hill; *H. S. Thompson*. Cadbury Camp. Roadside banks and rough pastures adjoining the road over Tickenham Hill. Old lanes and warrens about Wraxall. On the Rhodyate side of Yatton. Banwell Hill. Christon. On hedgebanks and as a garden weed at Winscombe; *W. F. Miller*. Sidcot; Shipham; Ebbor; Burrington Combe; Cheddar Gorge etc. on Mendip. Slade Bottom, Gurney Slade. Worle Hill and Worlebury, Weston-super-Mare. Uphill; *Mrs. Gregory*. Wedmore. Rarely on the peat moors. Wells; *Miss Livett*. Laneside under Duncorn Hill. Kingsdown, Hampton Rocks and Claverton Down near Bath. Several other localities in *Fl. Bathon*. Common about Frome; *Fl. Som*.

Together with many other persons I have long admired the graceful elegance of this little plant. Those specimens, often met with on dry slopes of our uplands, that carry a single upright flower on the top of their tiny stems, are exquisite.

**202. *G. lucidum* L.** *Shining Crane's Bill.*

Native; chiefly on limestone screes, damp rock, the walling of hedgebanks, and the old rubble-built walls that are so frequent in much of this district. Singularly common about Bristol, considering how seldom it occurs in some counties. Plentiful nearly everywhere on the coal-measures of West Gloucester as well as on the limestone tracts; and so generally distributed in Somerset that no localities are given in Mr. Murray's Flora. It forms wide masses as a rule, unlike the other species that in general grow singly. All Summer.

**203. *G. Robertianum* L. *Herb Robert*.**

Native; on rocks, walls, hedgebanks, cultivated and waste ground. Very common and universally distributed throughout the area. April to September.

**FORMA *floribus albis*.**

**G.** By the quarry at the eastern end of Combe Down near Henbury, persisting several years; *Spencer G. Perceval*. Alveston Common; hedgebank on the left hand going towards Elberton.

**S.** Roadside in Leigh Woods, 1911; *Mrs. Sandwith*. Formerly on a wall by the main road approaching Abbotsleigh; now gone through repairs. Plants derived from this spot reproduced themselves for years in Dr. Prowse's garden. By the Portishead railway near Bedminster Down; known there several years; *J. F. Hopkins*. On a retaining wall of the G.W.R. near the Avon at Newton St. Loe; now probably destroyed by re-pointing. In quantity on a hedgebank at Claverham, *i.e.*, in a cross road between Yatton Moor and Cleeve; first reported by Miss Winter nearly thirty years ago, and still maintaining itself. High rocks—on the left hand going up—in Burrington Combe, dwarfed to a few inches. Cheddar Gorge; *R. V. Sherring*. In a lane from Wells to Wookey Hole, July, 1849; *Herb. Cundall*. Reported from Wells also by Miss Livett.

The very pale green foliage of this albino form is characteristic. There is not the slightest doubt of its coming true from seed without variation.

It is probable that Dr. Turner had not met with it. He writes:—"If herbe Robert had had whyte floures as it hath rede, it myghte have well ben the thyrd kinde of Sideritis." *Herbal*, ii, p. 136 (1562). The point of this remark is not at all clear. For the plants then called Sideritides or Iron-worts had not white flowers; and Herb Robert had a reputation as vulnerary or blood-stancher before Turner's time. "Sideritidis nomine complectimur plantas nonnullas diversorum generum ab effectu vulnera ferro inflictæ sanandi ita denominatas, quæ odore cum Lamio conveniunt, sed folia Urticæ non habent." *Ray, Syn.* p. 242.

A learned note on "White Sports in Flowering Plants" by J. C. Mansel-Pleydell, the author of the *Flora of Dorset*, appeared in *Somerset and Dorset Notes and Queries*; 1890.

**VAR. *purpureum* auct. angl.**

Cheddar Cliffs, 1871; *H. M. Drummond-Hay* in *Herb. Boswell*.

But the Rev. E. S. Marshall (*Journ. Bot.* 1907, p. 220) thinks that the Cheddar plant is not this, but should be referred to var. *modestum*.

**VAR. *modestum* Jordan.**

On screes and rocks of Worlebury Hill, and on walls nearer Kewstoke: abundant also on rocks and slopes in and about Cheddar Gorge, up to over 800 feet; *E. S. Marshall*.

*G. purpureum* should have "petals narrower, sepals glandular-hairy, carpels glabrous and more wrinkled. A less extreme form is *G. modestum* Jord."; *Bab.*



*Man.* "The plant usually named *purpureum* in Britain differs from *G. purpureum* Villars in having downy carpels." *E. F. Linton* in *B. E. C. Rep.* 1899.

I notice that in specimens of *modestum* that come through British Exchange Clubs the peduncles are not shorter, but even the lower ones are longer, than the leaf; contrary to Jordan's description.

In fact, there appears to be the same difficulty in fitting our English variations of this species to the descriptions of French plants as in some other genera, where British specimens can seldom be made to correspond exactly to Continental-named varieties.

### ERODIUM *L'Hérit.*

#### 204. *E. cicutarium* *L'Hér.* *Common Stork's Bill.*

Native; on dry banks and the thin turf of our rocky hills; and more especially on sandy shores of the Bristol Channel; common. Varies very greatly in size and appearance: large coast specimens are sometimes mistaken for the next species. Small plants are abundant wherever the rock crops out on limestone uplands, and flower on into the winter.

April to October, and later.

#### VAR. *pimpinellæfolium* *Sibth.*

A distinct form, apparently alien, agreeing well with Sibthorp's description in *Fl. Oxon.* p. 211 (1794).

Abundant at the base of an old dust-heap by the Avon above Keynsham, in Bitton parish, 1895-7. In the Station-yard at Portishead, 1902.

The late Herr Freyn commented on my specimens:—"This biologically interesting form (*E. cicutarium*, b. *pimpinellifolium*, Willd.) is discussed at length in Kirschner, 'Flora von Stuttgart.'"

#### 205. *E. moschatum* *L'Hér.* *Musk Stork's Bill.*

Native; almost entirely restricted to rocky banks and pastures near tidal waters, occurring in small quantity. Rare and local. April to September.

**G.** St. Vincent's Rocks, 1841; *T. B. Flower*. Bank of the river under the Rocks; *Stephens Cat.* 1835. Foot of St. Vincent's Rocks, July, 1850; *Herb. Cundall*. Three or four plants on Clifton Down near the edge of the Great Quarry, 1896. Under the Sea Wall, on dredgings deposited in the Black Rock Quarry, 1883-7. Penpole Point, an old locality, permanent and certainly native, in fruit there by the end of April. A few plants on the grassy side of a lane by cottages at Severn Beach, below New Passage, Oct. 1901. Still there in 1908.

**S.** Portishead Station-yard, Oct. 1906 to 1909. In fair quantity on Hangstone Hill, Clevedon, truly wild, 1885; *D. Fry*. It was still there in 1906. Abundant on a rocky bank at Loxton, 1896. Wall at Winscombe, 1884; *H. S. Thompson*. The Lynch, Winscombe, 1892; *Mrs. E. S. Gregory*. North end of Kewstoke Bay, 1907; *Miss Roper*. Weston-super-Mare, 1847; *F. J. A. Hort*; and later by Prof. Leipner and Miss Livett. Manor Road, Weston-super-Mare, 1890! *Mrs. E. S. Gregory*. Purn Hill, Bleadon, 1888; *D. Fry* and *H. S. Thompson*. The mention of this plant in *Fl. Bathon. Suppl.* ("Kingsdown, the late Mr. J. Jelly."), was considered by the Rev. L. Jenyns to have been a mistake.

First British record :—"Geranium moschatum . . . Musk'd Crane's bill or Muscovy, I observed it near *Bristow* on a little Green you pass over going thence to *S. Vincent's Rock*." *Ray, Cat.* p. 132 (1670).

The Rev. E. S. Marshall (*Journ. Bot.* 1908, p. 283) mentions a small early-flowering plant found by him on Purn Hill, Bleadon, which answered to the description given of var. *minor* Rouy (*Fl. France*, iv, p. 113). I have little doubt that my specimens from Clifton Down and Penpole Point, and Mr. Fry's from Clevedon are the same form. Some of them do not exceed three inches even when in fruit.

## 206. *E. maritimum* L'Hér. *Sea Stork's Bill*.

Native ; on bare rocky places about limestone hills, either now overlooking salt water or else above those valleys that were once arms of the sea ; very rarely on low ground and never inland. Prefers thorough exposure to the west or south-west. Rare and local. April to September.

**G.** St. Vincent's Rocks ; *Winch* in *Herb. Watson*. Rocks at Penpole, Shirehampton ; *Thwaites* and *Flower* in *Swete*. Although not seen for so many years it is quite possible that the plant still exists in those localities.

**S.** Roman encampment, Leigh Wood ; a few plants about bare spots in the turf. I saw half a dozen in 1906, just 240 years after the first record for that locality. On the south-western face of Cleeve Toot, very abundant in some years. In dry Springs but little is to be found ; but in wet seasons the plant comes up plentifully. I have seen many hundreds at the end of April by the steep path up the Toot. Bare rocky ground on Brockley Warren, above Goblin Combe ; luxuriant after a warm damp Spring. Court Hill, Clevedon, reported by many botanists. Plentiful in a plantation near Holly Bush Lane, Walton-in-Gordano ; and on the coast in the same parish in turfy places amongst the rocks : of large growth at the latter habitat ; *D. Fry*. Shute Shelve Hill above the Rose Wood ; and on Wavering Down in 1907. Dolebury Camp ; abundant on the top, and also at the base towards Blackdown (Rowberrow Bottom). In great quantity by a cart track there in 1901 ; shown to me by Mr. C. Bucknall. Bank near Loxton, 1898 ; *H. S. Thompson*. Weston-super-Mare, June, 1850 ; *Herb. Lawrence*. Uphill ; *Rutter's Hist.* (1829). Brean Down ; *Sole* in *Collinson's Hist.* and *St. Brody, Fl. Weston*. Recent specimens from Brean Down have been sent me by C. E. Salmon and C. Bucknall. By Berrow Church ; *Rev. J. C. Collins*. Recorded from both Flat Holm and Steep Holm by Banks and Lightfoot in 1773. I saw a little on Steep Holm in 1890.

The earliest British record is from the Somerset division of this district :—"Geranium Betonicæ folio. Over against Saint Vincent's Rocks on the further side of the river." *Merrett*, p. 46 (1666). But Petiver, in *Phil. Trans.* XXVII, p. 379, says "the first discovery of this plant is owing to Dr. Morison . . . who found it in stoney places about Chadder in Somersetshire."



## [BALSAMINACEÆ.

**IMPATIENS** Linn.

**I. glandulifera** Royle. *I. Roylei* Walp. *Indian Balsam*.  
 Alien; naturalized by water. The large, handsome rose-purple flowers are often seen in gardens.

**G.** Two patches by the Trym just below Clack Mill: known there for at least thirty years. By the Frome on the Oldbury Court estate.]

## OXALIDACEÆ.

**OXALIS** Linn.**207. O. Acetosella** L. *Wood-Sorrel*.

Native; in woods and moist shady places. Frequent throughout the district. April and May.

The flowers are often pink or purplish with darker veins, as was noticed by Swete in Failand Woods. An apetalous plant was exhibited by Dr. Burder at a meeting of the Bristol Naturalists Society in 1886.

"This quite takes the place of *Anemone* in the woods near Clevedon;"  
*Miss Livett*.

For an admirable explanation of the way in which wood-sorrel leaves are developed and unfolded see a paper by Miss Agnes Fry in *Nature Notes*, August, 1891; reprinted in *Journ. Bot.* for that year.

## LINACEÆ.

**LINUM** Linn.**208. L. angustifolium** Huds. *Narrow-leaved Flax*.

Native; on banks and rough hill-pastures, often near the sea. Frequent in North Somerset, but very rare in West Gloucester.

July, August and much later in a warm Autumn.

**G.** Rather plentiful in rough pasture near Northwoods by Winterbourne.

**S.** On Publow Hill by the road to Queen Charlton, with *Vicia bithynica*; pointed out to me by Mr. D. Fry. Grassy roadside between Leigh Court Lodge and Abbotsleigh; sparingly, 1900-1. Coast near the Nore between Portishead and Clevedon. Weston-in-Gordano; *Rev. G.W. Braikenridge*. Wraxall; *D. Fry*; plentiful on the West Hill in 1910. Tickenham Hill. Sandford Hill; *H. S. Thompson*. Sand-hills, Weston-super-Mare; *Herb. Flower*. Uphill, a single plant; *Fl. Som.* Max Mills, Winscombe; *R. V. Sherring*. Slopes of Mendip above Rodney Stoke and Draycott. Roadside, Ubley. Between Frome and

Beckington; *Fl. Som.* Hilly pasture above Midford; *A. E. Burr.* Yarley Hill near Wells; *Miss Livett.*

First local and British record:—"I have sene flax or lynt . . . wilde in Sommersetshyre wythin a mile of Welles. It hath fewer bowles in the top than the sown flax hath.\* . . . These knoppes or heades [of flax] are called in Northumberland bowles."—*Turner, Herb.* II, p. 396 (1562).

### 209. *L. usitatissimum* L. *Common Flax.*

Alien or Casual; by roadsides, among sown cereals, and occasionally in poor pasture as a relic of ancient cultivation. Not common. I have never seen flax grown as a crop anywhere about Bristol. July and August.

**G.** Banks near the Suspension Bridge, Clifton, July, 1865; *Eliz. Chandler* in *The Naturalist*, 1866. Three or four plants near the Avon under Sneyd Park, 1905. By a new road at Avonmouth, 1906. On a waste heap at Ashley Hill, 1903. Border of a field at Henbury. Among clover at Little Stoke, 1904. Roadside, Frenchay. On dredgings deposited in the Black Rock Quarry, 1883-4. Often on rubbish in St. Philip's Marsh where, as in other like spots, it doubtless springs from the domestic use of the seeds as "Linseed." Two or three plants by a roadside near Littleton-on-Severn, 1905; *Miss Roper*. In a large field (12 to 15 acres) of rough pasture W. of Winterbourne, between Calebs and the Stoke Brook, flax was growing in profusion over about half the area in June, 1905. The plant was thinly scattered in some spots; in others it was more abundant than the grasses. This field contained quantities of dyer's-weed, grass-vetch and bee orchis, and showed no trace of cultivation. It is probable, however, that at a former period the land was arable and that crops of flax were grown on it; but so long a survival of the cultivated plant in this great abundance is most unusual. And I noted in 1906 another similar field, with bee orchis etc. and much flax, between Patchway and Almondsbury. These occurrences are not in line with the experience of those authors who consider that the plant cannot permanently establish itself, but is only renewed by the dropping of fresh seeds.

**S.** Keynsham; *W. E. Green*. Sparingly by roadsides between Pensford and Stanton Drew, 1886-7; *D. Fry*. Brockley, in a farm barton. Between Yatton and Cleve, 1894. A number of plants by the roadside between Walton and Weston-in-Gordano, 1903-6. On railway ballast at Portishead, 1897; *E. Wheeler*. By Portishead Station, 1904.

We get an indication of the former local status of flax from a successful claim, made by the Vicar of Worle in 1815, to a tithe of flax grown in his parish.—*Manchee, Charities*; 1831, vol. i, p. 188.

Like wheat, *Linum usitatissimum* is unknown in a wild state, and its origin is uncertain. It is supposed to have been evolved in cultivation by gradual stages from *L. angustifolium*. No one can say when the cultivation began. We only know that flax formed an important crop in Egypt more than 5,000 years ago, and that it was in domestic use long before hemp or wool.

\* Bowle or Boll: Old Saxon-English for the round pod or capsule of a plant. See *Erodus* ix. 31. "Take the bolle of the popy while it is greene."—*Med. MS. Cathedr. Heref.* (c. 1500).



**210. L. catharticum L.** *Purging Flax.*

Native. A very common and widely diffused annual, abundant on open banks, upland pastures and commons. June to September.

In the middle ages this herb was esteemed as a medicine by country people, and it still finds some little use at the present day—the dose being a small handful of the whole plant infused in water, or (formerly) in wine. Boiling destroys the active principle, which has not been isolated.

**RADIOLA Hill.****211. R. linoides Roth. R. millegrana Sm. All-seed.**

Native. Confined in this district to the peat moors of North Somerset; at Burtle, Edington, Shapwick etc. Quite local and not abundant.

July and August.

**CELASTRACEÆ.****EUONYMUS Linn.****212. E. europæus L.** *Spindle-tree.*

Native. Common in hedges and woods, and uniformly distributed through the greater part of our area. It occurs upon the Downs, and in Cook's Folly Wood.

May and June.

**RHAMNACEÆ.****RHAMNUS Linn.****213. R. catharticus L.** *Buckthorn.*

Native; in hedges, thickets and wood-borders, rather common.

May to July.

**G.** On Clifton Down. Shirehampton. Westbury-on-Trym. Ashley Hill. Hedges at Horfield; *Swete, Fl.* Hedgerows in Filton Meads; at the top of the lane from Southmead to the village; and between Filton and Charlton. It forms almost an entire hedge between Filton and Patchway Station. Stoke Gifford. Some bushes by the Bradley Brook near Winterbourne. Plentiful in hedges N. of Pucklechurch. Tytherington Hill. A tree over 20 feet high with many others, in hedges between Wapley and Codrington. Wyck. Doynton.

**S.** Roman encampment, Leigh Woods. Stockwood Lane. Whitchurch. Sparingly at Newton St. Loe, but very abundant in some of the lanes around Keynsham and Chewton Keynsham; and in great quantity in the lane between

Queen Charlton and Whitechurch; *D. Fry*. Lane off Ursleigh Hill. Hedgerows on the high ground between Norton Hautville and Stanton Drew, and in Featherbed Lane leading thence to Clutton; *D. Fry*. Norton Malreward. Pensford; *R. V. Sherring*. In the Chew valley between Woollard and Houndstreet. Backwell Hill. Tickenham Hill, and under Cadbury Camp. A tree near the top of Wraxall Hill; *Misses Cundall*. Portishead; *D. Fry*. Nightingale valley above Weston-in-Gordano. Clevedon, plentiful in the Kenn road, and on Walton Castle Hill. A large quantity—in places extending for yards—in hedges near Puxton Station. Hutton. Weston-super-Mare. In many of the old hedges on Mendip; as at Rowberrow, Sidcot, above Draycott, in Ebbor Gorge and at Wookey Hole—chiefly isolated trees. Several small trees on the slopes of Cheddar Gorge, 1888 and subsequently. Old grassy lanes leading from Farlington Gurney to Litton and Hinton Blewett. Roadside near Downhead Common; *Fl. Som*. Great Elm. Asham Woods; *Miss Livett*. Nunney; *Rev. S. Laing*. Not uncommon in the south-east of the district; *H. F. Parsons*. Hedge from Upton to Lansdown; *T. F. Inman*. Englishcombe. Combe Hay.

Mr. Murray states that Buckthorn is rare or absent in the south and west of Somerset. He believes it was often planted in old hedges on account of the berries being in request for dog-medicine etc. A syrup of the fruit is still much used.

#### 214. *R. Frangula* L. *Black Alder*.

Native; in wet thickets and on peat, rare.

May to July.

**G.** Crew's Hole; *Thwaites* and *Flower in Swete*. Dr. Thwaites sent a specimen to Hewett Watson for *Topogr. Bot*. Hedges about Horfield; *Stephens Cat.* (1835). Copse between Horfield and Stapleton; *Herb. Stephens*. In the Beach lanes, between Bitton and Lansdown; *Canon Ellacombe*. Named too in an apparently authentic list of Bristol plants of date about 1830. I myself have not yet met with it in Gloucestershire.

**S.** In the wood, Portishead; *Duck*. A somewhat doubtful record. Walton Moor, "a good deal in Walton withy-bed"; *D. Fry*. Plentiful in Max Bog near Winscombe. On the Burtle, Shapwick, and Ashcot peat moors, in alder holts and thickets along the railway; but scarce.

[**R. Alaternus** L. An alien shrub from Southern Europe. During the last ten or twelve years my attention has been repeatedly drawn to a large bush of this species on the rocky slope near Proctor's Fountain, Clifton Down; where it appears to be quite at home among the hollies and thorn trees, and flowers copiously at the end of March. A *Laurustinus* is near at hand. It has been conjectured that these are relics from a garden attached to the old Clifton Turnpike that stood hard by; but persons who remember the Toll-house say that it had no garden.

Although I do not find *R. Alaternus* in any list of aliens introduced by accident into this country, nor have I seen it in any Bristol shrubbery, it is described in Lindley's *Treasury of Botany* as having been long grown in several varieties for ornamental purposes; and it is quoted in nurserymen's lists of evergreen shrubs.]



## LEGUMINOSÆ.

ULEX *Linn.*215. *U. europæus* *L.* *Furze. Gorse.*

Native; on heathy ground, downs and commons; very common.

November to June.

On sheltered slopes of open woodland, as at Combe Down, Chelvey Batch etc., furze bushes reach a height of 11 to 12 feet.

With double flowers on the railway bank opposite Sea Mills, 1889; *L. W. Rogers*. And a double-flowered furze has been lately planted on the Downs.

Furze is not a plant restricted to simple leaves—"leaflet solitary"—as is stated in many works, and even in our latest *Manual of British Botany*. The true condition is set out in the *Student's Flora*. A seedling *Ulex*, in its early period, develops compound trifoliate leaves to the number of a dozen or so, shortly petioled, consisting each of three elliptical, hairy, articulated leaflets. The plant has at first no spines, but at a height of about four inches, usually, the trifoliate leaves cease to be produced and are then succeeded by spines. Rarely there may be, later, a production of minute simple leaves upon the spines.

216. *U. Gallii* *Planchon.* *Autumn-flowering Furze.*

Native; on heaths and downs; locally common. Often as abundant as the last species.

August to December.

**G.** Clifton and Durdham Downs. Banks by the railway under the Downs, and in Cook's Folly Wood. Glen Frome, at Stapleton and Frenchay. Conham, and higher up the Avon towards Hanham Weir. Hanham, 1851; *Herb. Jenyns*. Rodway Hill. Siston Common. White's Hill. Winterbourne Down. Bury Hill. Ivory Hill. Yate and Westerleigh Commons. Yate Rocks. Yate Lower Common, and similar ground nearer Wickwar. Cromhall Common; a splendid sight in September. Wyck. Hawkesbury.

**S.** Outskirts of Leigh Woods. Hillsides by Providence Place and Ashton Tump. Bourton Batch. Failand, in rough pastures; and on slopes at the head of Markham Bottom. Hills at Clevedon, and along the coast downs to Portishead. By the G.W.R. at Fox's Woods, and on the rough ground by Hanham Ferry. Keynsham, in several spots. Hillsides above Featherbed Lane towards Stowey and Sutton Court; *D. Fry*. Worlebury and Birnbeck at Weston-super-Mare. Hutton and Bleaden. Downside Common. Edford. Downhead Common. On many slopes along both flanks of the Mendip range, i.e. Blackdown, Axbridge, Cheddar, Burrington, Ubley, the Harptrees, Wells and Shepton Mallet. The high moorland around Priddy Nine Barrows makes a beautiful display of blossom towards the end of September.

The figure in *Engl. Bot. Suppl.* was drawn from a specimen supplied from Durdham Down by Dr. H. O. Stephens in October, 1849; only a few months after the plant had been described by Planchon.

VAR. *humilis* *Planchon*.

A depressed humifuse variety with small flowers, and crowded branchlets, that grows in dense patches to about eighteen inches high. It has been recognized on Blackdown by Mr. Cedric Bucknall.

There is no satisfactory record for *U. nanus* Forst. (*U. minor* Roth.) in the district. It is queried for West Gloucester in *Topogr. Bot.*; and in the *Flora of Somerset* it is said to occur "only along the southern border of the county." Small weak states of the last species sometimes do duty under the name, though in reality they are very distinct.

GENISTA *Linn.*217. *G. tinctoria* *L.* *Dyer's Green Weed.* *Woad-waxen.*

Native; in rough, barren pastures on stiff soils. Frequent, but perhaps less abundant than formerly on account of improved methods of farming.

July to September.

**G.** Filton Meads. Fields behind Stoke House, Stapleton! *Herb. Stephens*. Plentiful in meadows about Charlton, Patchway, Northwoods, Alveston and Thornbury. Poor pastures about Yate Rocks, Wickwar, Hillsley and Charfield. Wyck. Cold Ashton.

**S.** Marshy fields west and north of Dundry Hill. Roadside above Wraxall. Whitchurch and Ursleigh Hill (the Ordnance map-spelling "Hursley" is considered erroneous). Between Pensford and Publow. Plentiful in the Chew valley above Compton Dando. In great abundance on rough hilly ground between Featherbed Lane and Stowey; and between Stanton Drew and Knowl Hill; *D. Fry*. In the peaty fields about Max near Winscombe. In the Wrington valley under Blagdon and Compton Martin. Easton, near Wells; *Miss Livett*. Mells, Great Elm etc. Several localities near Bath in *Fl. Bathon*.

This was at one time a plant of local interest from a commercial point of view. The author of *The Journal of a Naturalist*, writing from Thornbury about 1824, says:—"The dyer's broom abounds with us, and becomes a perfect encumbrance in our clay land pastures. . . . Our poorer people a few years ago used to collect it by cartloads about the month of July; and the season of woad-waxen was a little harvest to them: but it interfered greatly with our hay-making. Women could gain each about two shillings a day, clear of all expenses, by gathering it; but they complained that it was a very hard and laborious occupation, the plant being drawn up by the roots, which are strongly interwoven in the soil. The dyer gave them eightpence for a hundredweight; but I fear the amount was greatly enhanced by the dishonest practice of watering the load, for the specious purpose of keeping it green; and the old woad-waxers tell me that, without the increase of weight which the water gave the article, they should have had but little reward for their labour. Greediness here, however, as in some other cases, ruined the trade, the plant becoming so injured and stunted by repeated pullings, as to be in these parts no longer an object worth seeking for: and our farmers rather discountenance the custom, as



the green-weed preserves and shelters at its roots a considerable quantity of coarse herbage, which in the winter and spring months is of great importance to the young cattle."

The green-weed was used by dyers to stain woollen cloths a dull yellow. Then, the fabric being again dipped in other liquors, various shades of green were produced.

**218. *G. anglica* L.** *Needle Whin.*

Native; on heathy commons which, in every instance, formed part of the ancient forest of Kingswood. Rare and local. May and June.

**G.** On Rodway Hill, sparingly under furze bushes in a few spots. Siston Common. Lyde Green. Yate Common. Sodbury Common.

*G. anglica* is included in a list of plants observed on Steep Holm, May, 1883, by Mr. John Storrie, Curator of the Cardiff Museum. A mistake?

**SAROTHAMNUS** *Wimm.*

**219. *S. vulgaris* Wimm.** *Cytisus scoparius* Link. *Broom.*

Native; on dry sandy banks and hillsides, no matter how sterile or poor the soil. Locally common. May and June.

The habitats nearest to Bristol are on sandstone banks near the Avon under Cook's Folly; along the G.W.R. between Brislington and Keynsham; and about Trooper's Hill, St. George's. Practically absent from the arable and limestone portions of the area, as well as from the Bath oolite—broom is not mentioned in the *Fl. Bathon.*—but of general distribution on the coal-measures, where it grows in profusion. I have seen it in cultivation on Brockley Warren to make cover for game, and one can feel no objection to this most beautiful of British shrubs being planted for that purpose.

**ONONIS** *Linn.*

**220. *O. repens* L.** *O. arvensis* auct. *Trailing Rest-harrow.*

Native; on banks, commons and barren pastures, rather common.

June to September.

The plant ascends to 800 feet on some of the higher Mendip pastures, in which it is abundant. At one time it must have been plentiful on the Downs at Clifton, for Withering says that in 1793 he examined a large number of specimens on St. Vincent's Rocks in a search for the spinous form. None can be found there now; it seems to have entirely disappeared. Probably, like furze, the rest-harrow cannot endure trampling.

The spinous form has been noted on Ursleigh Hill and about the adjoining upland pastures and lanesides towards Publow and Queen Charlton; and at Winterhead on Mendip.

Some plants with pure white flowers at North Stoke; *L. W. Rogers*. And at Newton St. Loe; *G. Morse*.

VAR. **horrida** Lange. = *O. maritima* Dum.

A prostrate, clammy, glandular-villose variety, growing on coast rocks and sand-hills. When young it is unarmed: spines are developed in the third year of its growth.

**G.** By the Severn sea-bank below the Tunnel.

**S.** Downs on the coast near Walton, and on the ridge above Weston-in-Gordano; *Miss Livett*. Kewstoke Bay. Uphill, on limestone, very scarce; *Rev. E. S. Marshall* in *Journ. Bot.* 1907. The year following, Mr. Marshall reported that this variety was much more abundant at the S. end of the Uphill Rocks. Among the sand-hills near Burnham, Berrow and Brean; frequent.

**221. O. spinosa** L. *O. campestris* Koch. *Upright Prickly Rest-harrow. Cammock.*

Native; on alluvial clay and old barren pastures. Locally common.

June to September.

**G.** Alluvial fields by the Avon between Shirehampton and Avonmouth. And similarly at intervals by the Severn northward from Avonmouth to Berkeley. In great plenty along the sea-bank at Sheperdine, above Oldbury-on-Severn. Baptist Mills; *Swete, Fl.* Pastures between Patchway and Almondsbury. Rough hilly ground and lanesides south-east of Wickwar, abundant. In profusion on Inglestone Common between Wickwar and Hawkesbury. Grassy roadsides on the Codrington Road near Wapley.

**S.** Knowle; *Rev. W. H. Painter*. On the high ground above Publow and Woolard towards Queen Charlton. Rough fields between Stanton Drew and Clutton; *D. Fry*. Slopes of Lansdown above North Stoke, plentiful; *D. Fry*. Borders of fields and hedgebanks in the Nailsea valley, and between Cleve and Yatton. Clevedon; *D. Fry*. Uphill; *Mrs. Gregory*.

The cottagers of West Gloucester call this "Cammock," just as they do in South Somerset (*Murray*); and (the last species) in Cornwall (*Briggs*). An old English plant-name of doubtful origin, it was used in Saxon times, and has now for centuries designated *O. campestris*.

Earliest local and British record:—"Ononis aut Ononis Asinaria . . . Spinosa varietas . . . occurrit in pratis maritimis et udis Angliæ præsertim ad Bristoiam et prope Londinum, foliis maioribus, et tantillum crenatis, similibus superioris. . . ."—*Lobel. Adv.* p. 378 (1570).

## MEDICAGO Linn.

**222. M. sativa** L. *Lucerne.*

Alien. A stray or survival from cultivation, now well established by roadsides, on coast sand-hills, and in other stations. Frequent. June to September.

**G.** Clifton Down, above Bridge Valley Road; there for many years. Between Brentry and Westbury-on-Trym. Railway banks along the new line by Henbury. Stoke Gifford. Northwoods. Milbury Heath.



**S.** Railway cutting near Brislington. Stockwood. Keynsham. On the coast downs between Portishead and Clevedon; *Miss Livett*. Roadside near Portishead Cemetery, 1906. Clevedon, and Twerton; *S. T. Dunn*. Kewstoke sands. Weston-super-Mare and Uphill; *Mrs. Gregory*. Abundant on sand-hills near Burnham, where I have seen plants with white flowers.

This is the "Medic Fother or Horned Clover" introduced into England by Turner at the middle of the sixteenth century. "A very excellent herbe, because when it is ones sowed it dureth for the space of ten yeres, . . . it may be well mowen four times every yere, and in some yeres six times . . . it fatteth every lene beaste, and heleth every sick beaste." *Herb.* ii, p. 52 (1562). Turner gives ample instructions for the sowing and cropping.

**223. *M. falcata* L. Yellow Medick.**

Alien; derived from foreign seed, grain-siftings, mill-waste, etc. Increasing of late years and maintaining its ground.

**G.** Under St. Vincent's Rocks; *Stephens Cat.* 1835. Plentiful at "Holly Gess" between Hanham and Warmley, 1880 to 1890; or until the ground was enclosed. On waste ground at St. Philip's Marsh, Bristol, 1895; *S. T. Dunn*. And continuing there until 1906!

**S.** Bank of the Avon at Saltford, 1900, flood-borne? *D. Fry*. Newton St. Loe; *G. Morse*. Portishead Station-yard, on corn-mill refuse, 1900-8! *Mrs. Gregory* and *Miss Peck*. Weston-super-Mare; *Hort in Phytol.* II, p. 1047. Uphill; *Dr. St. Brody*. Sandy field near the lighthouses, Burnham, 1884. *D. Fry*. Still there, or near the same place, 1906! Bathampton; *T. F. Inman* in *Fl. Som.*

Mr. S. T. Dunn sent specimens of *M. falcata* from Bristol to a Botanical Exch. Club in 1895, and mentions the plant in his *Preliminary List*. Yet it is omitted from the *Alien Flora*. Regularity of recurrence suggests that with us this species almost deserves promotion from the Casual to the Colonist grade.

*Medicago media* Persoon = *M. falcato-sativa* Rehb., which is probably a hybrid between *M. sativa* and *M. falcata*, occurs on waste ground at Burnham near "The Colony"! *H. S. Thompson*; Sept. 1906. And what possibly may be the same thing grows near the Portishead Dock. It does not appear to produce any good pods.

**224. *M. lupulina* L. Black Medick. Nonsuch.**

Native; in pastures and on roadside wastes: also often sown with other fodder plants. Very common and abundant. May to September.

**VAR. *Willdenowiana* Koch.**

Has the fruit covered with stout, jointed, glandular hairs.

**G.** In a large field of Sainfoin between Winterbourne village and the Church, 1910.

**S.** In the Station-yard at Portishead, Oct. 1900. Near the sea, Uphill! *Mrs. Gregory*.

**VAR. *scabra* Gray.**

With simple, non-glandular hairs on the fruit.

**G. Field of sown fodder at Winterbourne.**

A curious plant with loose clusters of flowers, long pedicels, and falcate pods, occurred on a shingly beach by the Severn in 1902. This was considered by Mr. Arthur Bennett to be a sport or monstrosity of *M. lupulina*. An exactly similar specimen has been gathered by Mrs. Gregory on the loop-line railway at Weston-super-Mare. Prof. Babington, in 1853, recorded an analogous instance in which the pod of *M. maculata* was sickle-shaped and unarmed.

**[*M. marginata* Willd.]**

Casual on rubbish in St. Philip's Marsh, July, 1904. A variety of, or very closely allied to, *M. orbicularis* Allioni which is a common cornfield weed in Central and Southern Europe, and has been so frequently introduced into this country as to find a place in Mr. Claridge Druce's *List of British Plants*.]

**[*M. scutellata* Mill.]**

Casual with the last at St. Philip's in 1904. In an old lias quarry between Twerton and Englishcombe, 1897; *S. T. Dunn*. Mr. Dunn found it also in some quantity "among a dense vegetation of weeds on extensive clinker deposits at Twerton, near Bath. It may have been introduced accidentally from the Mediterranean region where it is indigenous, but more probably from a garden. It was common in English gardens in Miller's time, 1748 (cf. "Gard. Dict."), and may still survive."—*Report Bot. Ex. Club*, 1896, p. 512.]

**[*M. turbinata* Willd.]**

On the sidings in Portishead Station-yard, 1906-7; introduced either with corn-mill refuse, or sweepings from the railway trucks! *Miss Livett*.]

**[*M. rigidula* Desr.]**

Casual in St. Philip's Marsh, 1902.]

**225. *M. arabica* Huds. *M. maculata* Sibth. *Spotted Medick*.**

Native; on hedgebanks and grassy wastes, seldom far removed from the tidal Avon or the Channel. A sub-maritime species. Rare. May to August.

**G.** Formerly about the quays of Cumberland Basin when such places were allowed to grow a few weeds; now scarce. Bank of Avon, along the tow-path above Sea Mills; a locality that has been recorded by many botanists. It extends about half a mile or so, as far as Cook's Folly. Abundant on dredgings placed in the Black Rock Quarry in 1883-4; but after a while the plant was crowded out by a more robust waste-ground vegetation. Brandon Hill; *H. O. Stephens* in *Swete, Fl.* It is probably still there, for it was seen by Mr. David Fry in 1886 and has not been looked for lately. Stapleton and Frenchay; *Herb. Stephens, A. Leipner* and *W. E. Green*. I know one locality in that neighbourhood: on a bank of rock close to the Frome in a lane leading from Stapleton Church to Fishponds. Mr. Bucknall tells me he saw it there more than thirty years ago. Penpole Point; *Miss Roper*. Approach to Kingsweston Down from the Iron Bridge. Sand-pit on high ground above Bitton. Plentiful in a damp field near Rangeworthy.

**S.** Rownham, near the ferry, 1883 and 1894. Portishead Dock, very luxuriant, 1904; *Miss Roper*. Kenn; *Fl. Som.* Clevedon; *W. E. Green*. Weston-super-Mare, "where it springs up commonly on lawns"; *Mrs. Gregory*. Uphill. Brean Down. Bleadon and Berrow; *Rev. E. S. Marshall*. Plentiful near High-bridge; *D. Fry*. Mells; *Rev. S. Laing*. Roadside at Worminster near Wells, and as a garden weed; *Miss Livett*.



**226. *M. minima* L.** *Little Bur Medick.*

Native? Very rare; now almost certainly extinct. May to July.

**G.** Dr. H. O. Stephens, in his *Catalogue* (1835), records this as found on St. Vincent's Rocks and Brandon Hill. A specimen from the former place, bearing his name but without date, is in the herbarium of the Bristol Naturalists Society; and I have seen two others, dated June, 1857. Both localities have been repeatedly searched by later botanists without result. In July, 1883, I found one plant in the Black Rock Quarry on dredgings from the bed of the Avon, and that may possibly have sprung from old seed of a St. Vincent's Rock plant. None has been seen since. It must be confessed that an annual arenophilous *Medicago* can upon no hypothesis be considered as a likely indigenous item in the primitive flora of a limestone gorge. Still, it seems improbable that these occurrences were all casual. The Brandon Hill locality at any rate was on sandstone; and it may have been destroyed with the *Moenchia* (q.v.). Casual on refuse in St. Philip's Marsh, Sept. 1895; *C. Bucknall*.

**S.** Weston Fields, Bath; *Dr. Davis* in *Fl. Bathon*. Adjudged to be a mistake in the *Flora of Somerset*.

**227. *M. denticulata* Willd.** *Reticulated Medick.*

Colonist; of rather recent introduction. Rare. May to August.

**G.** Thirty years ago it grew freely about Cumberland Basin and the adjacent riverside, but has been scarce of late. Abundant along the tow-path under the Downs and in the Black Rock Quarry, 1883 and subsequently. Still there in smaller quantity, 1906. Casual at Baptist Mills, 1911! *I. W. Evans*. On mill-refuse between Kingswood (below Wotton-under-Edge) and Alderley, 1900.

**S.** Sparingly by a quarry under Leigh Woods, 1899. Bank of Portishead Pill near the village, 1905-6; *Miss Peck*. Saltford; *D. Fry*. Casual at Twerton; *S. T. Dunn*. The Rev. E. S. Marshall found it in May, 1906 on grassy lias slopes near Dunball, evidently native; but the locality lies beyond the southern limit of our district.

My Latin label quoted by Mr. Murray in *Fl. Som.* was intended for foreign exchanges: the specimens under it were collected in Gloucestershire.

That this plant has been brought into our port by foreign commerce at no distant date is fairly evident. It is practically confined to the Avon valley, and did not come under the notice of local botanists in the last generation. There is no mention of it as a Bristol species in the *New Bot. G.*; in *Topogr. Bot.*; in Swete's *Flora*; nor in the *Fl. Bathon*.

**VAR. *apiculata* Willd.**

Several plants on waste ground at Portishead, Oct. 1900; no doubt an introduction. Casual near Twerton, 1897; *S. T. Dunn*.

**MELILOTUS Hill.****228. *M. officinalis* Lam.** *Common Melilot.*

Native; on dry banks, borders of fields and roadsides, rather common.

June to August.

**G.** Along the railway to Avonmouth, and the rocky bank of the Avon below Bristol. Fields between Kingswood and Hanham. Rubble from the quarries at Conham. Glen Frome, towards Frenchay. Border of Cleve Wood, Bitton; *D. Fry*. Frampton Cotterell.

**S.** Slopes under Leigh Woods and on the Portishead railway. Bedminster, about the collieries; and on the site of old iron-works at Ashton Gate. In the cuttings of the G.W.R., abundant between Long Ashton and Bourton. Near the railway station at Brislington, and in Talbot Lane; 1900. Stockwood Lane. Ursleigh Hill near Pensford. Yatton; *Miss M. Winter*. Clevedon, in several places; *D. Fry*. Weston-super-Mare. Uphill. Berrow and Burnham. Draycott. Wells. Ashcot peat moor, on cultivations. Frequent in the district; *Swete*, *Fl.* Common; *Fl. Bathon*.

### 229. *M. arvensis* Wallr. *Field Melilot.*

Alien: a waste-ground introduction, usually met with on railways, new roads and field-borders. Now frequent. July to September.

**G.** Always to be seen about the railway banks that cross St. Philip's Marsh; and, in less quantity, on the ground that has been raised by tipping rubbish. Waste ground below the Lamplighters and by Avonmouth Docks, 1900 to 1910. Side of the new road from Filton to Stoke Gifford, August, 1900! *Miss Roper*. Railway bank near Henbury Station.

**S.** Bank of the Avon below Bristol, July, 1884. By the new road from Ashton Gate to the Hotwells, 1906. In fields on the hill behind the pier at Clevedon, facing the sea, 1895; *S. T. Dunn*. Clevedon; *Miss Livett*. One large plant at Salford, 1900; *D. Fry*. Abundant on the sidings at Portishead Station, 1900-8. Old lias quarry between Twerton and Englishcombe. Outskirts of Burnham, 1895; *S. T. Dunn*.

Although unrecorded in any earlier publication, there can be little doubt that this plant existed in the neighbourhood of the city many years before it was identified. It bears a close general resemblance to the Common Melilot. I believe that it is going to occupy a permanent place in the Bristol flora.

### 230. *M. alba* Desr. *White Melilot.*

Alien; in like situations to those preferred by the last species, but even more partial to rubbish-laden ground. Casual in its appearance and uncertain in duration, yet sometimes holding on for many years. Frequent.

July to September.

**G.** A plant on Clifton Down, 1905; *Miss Beames*. Several by the Port and Pier Railway near the Great Quarry, 1900; *C. Bucknall*. Some fine specimens in the Black Rock Quarry, 1883-4. Several on made ground by the river below Shirehampton, 1909. Two at Avonmouth, 1903; and one there in 1908. Waste ground by Stapleton Road Gas Works, 1911! *Mrs. Sandwith*. On made ground in St. Philip's Marsh, 1887 onward to 1906: no doubt still there. Ashley Hill, 1880; *W. E. Green*. A few plants in a field near the river at Hanham, 1890-1; *D. Fry*. Several on colliery rubble (trial-pit) at Mount Hill,



Kingswood, 1881; *Dr. A. C. Hassé*. Three there in 1887. In a turnip-field below Ivory Hill, 1905. One plant by a roadside between Iron Acton and Rangeworthy, 1908; *C. Bucknall*. Railway sidings, Stoke Gifford; *Miss Roper*.

**S.** Quarry on Crox Top near Whitchurch; *Rev. W. H. Painter*. One plant at Ashton Vale Colliery, 1880; *T. F. Perkins*; one there in 1904; and two not far from the same spot in 1905. Waste ground, Portishead, 1901; and again in 1907. Garden weed at Bath, 1895; *S. T. Dunn*. Formerly abundant in the sandy fields between Burnham and Berrow. A great deal of that ground has of late been built upon, or enclosed by golf clubs; yet the plant continues to show itself here and there in untouched corners, or at the ends of blind roads. Casual near Mells, 1905; *Rev. S. Laing*.

We may believe that the White Melilot arrived at Bristol with the last third of the nineteenth century, for there is no mention of it in local lists prior to 1880. Watson, in *Topogr. Bot.*, says he held a note of the plant's occurrence in both North Somerset and West Gloucester: there is however no reference by Swete or his contemporaries. Doubtless its coming was at once remarked, as the white flowers could not be overlooked. One might expect it to be met with farther down than Bridgwater, spreading along the railways as it is known to do; but the county *Flora* contains no record for West or South Somerset.

**231. *M. indica* Allioni. *M. parviflora* Desf.**

Alien. A pretty, slender plant, much smaller in all its parts than the preceding. Introduced with grain from the East. Rare. July to September.

**G.** On rubbish in St. Philip's Marsh, 1895 to 1907. Two or three dozen plants in a field of mangolds between Horfield and Charlton, July, 1908. Wapping Wharf, Bristol Harbour, 1911.

**S.** Among mangolds and swedes near the Avon at Newton St. Loe: a dozen or more plants in 1893, sparingly in 1894, in good quantity in 1895, one only in 1900; *D. Fry*. On railway sidings and corn-mill refuse by Portishead Station, 1900-8. Clevedon, in potato ground; *Miss Livett*. Twerton, near Bath, 1897; *S. T. Dunn*.

First detected in the district by Mr. David Fry.

**TRIFOLIUM Linn.**

**232. *T. pratense* L. *Purple Clover*.**

Native; in fields and pastures, very common. White flowered plants have been noticed on banks of the Port and Pier Railway; at Dundry; and at Clevedon. May to September.

While generally of cultivated origin=*var. a. sativum* Syme; we certainly have the wild *sylvestre* variety as a native plant in unenclosed portions of the area.

**VAR. *parviflorum* Bab.** (head stalked, calyx teeth longer than the corolla); Oxleaze near Hambrook, 1906; *Miss Roper*.

**233. T. medium L.** *Zigzag Trefoil.*

Native; in woodland, the borders of fields and bushy places, rather rare.

June to August.

**G.** Durdham Downs, in the Gully near Sea Walls. Cook's Folly Wood. Sparingly on a hedgebank at Sea Mills. Base of Rodway Hill; *C. Bucknall*. Downend. Plentiful at Shortwood near Pucklechurch; *Swayne* in *Withering*. Wyck Rocks; *Herb. Flower*. Among bushes near Patchway; *Herb. Cundall*. Black Horse Hill; *Misses Cundall*. Yate Lower Common. Yate Rocks; *Miss Roper*. Wotton Hill. Stinchcombe Hill. A large patch by the main road between Chipping Sodbury and Wickwar! *Miss Roper*.

**S.** Leigh Woods, for a few yards by the side of a path along the edge of Nightingale Valley. Bank of Avon opposite St. Vincent's Rocks; *Herb. Flower*. And there is a large patch on the rocky river bank lower down, opposite Sea Mills. Lane near Crox Top, Bishopsworth. Stockwood lane; *Swete, Fl.* Grassy laneside between Pensford and Queen Charlton. Roadside bank in Portishead Wood! and on the edge of the wood; *Miss Peck*. Clevedon; *Miss Livett* and *W. E. Green*. On the coast near Walton-by-Clevedon; and on the other side of the ridge above Weston-in-Gordano. Sidcot; *Fl. Som.* Congresbury etc.; *D. Fry*. Under Crook's Peak on the Winscombe side. Shapwick peat moor. Lansdown and Smallecombe Wood, Bath; *Fl. Bathon*.

**234. T. incarnatum L.** *Crimson Clover.*

Casual; on field borders and by roadsides where it has escaped from cultivation. Rare.

June and July.

**G.** Roadside waste at Sea Mills, 1898. Westbury-on-Trym; *W. E. Green*. Near Charlton, by a rick-yard. Colliery heap, Warmley. Quarry rubble at Conham. Field at Frenchay; *H. J. Wadlow*.

**S.** Ashton Gate, by the Portishead railway. Two plants by the roadside on Bedminster Down, 1901. On a bank rising above the ploughed land at Backwell, 1903. Roadside under the Court Hill, Clevedon, 1897. West of Clutton Station, under a rubble wall. Weston-super-Mare; *T. F. Perkins*. Burnham *D. Fry*. Naturalized in several places about Bath; *Rev. L. Blomefield*.

**235. T. arvense L.** *Hare's-foot Trefoil.*

Native; chiefly on the sandy shores of the Channel, where it is plentiful; and on sandstone in the Avon valley. Of rare occurrence elsewhere. Local.

June to August.

**G.** Casual at Baptist Mills, 1911! *I. W. Evans*. Garden weed at Ashley Down; *C. Alden*. On rubble from the Avonside quarries at Conham and Hanham. Casual on a small colliery heap between Kingswood and Hanham for several years, now gone. Sand-pits on high ground above Bitton, 1909. Wyck cliffs; *Swayne* in *Withering*; and *T. B. Flower* in *Suppl. Fl. Bathon*. Stone; plentiful on Trap at a place called "The Rockies," 1911!

**S.** Brislington; *J. Foster* in *Swete*. Walton-by-Clevedon; *W. E. Green*. Kewstoke Bay. Sands between Weston-super-Mare and Uphill; *Herb. Flower*.



Here and there on the sandy coast-line from Brean to Berrow and Burnham, plentiful in some spots. On the beach of Steart Island. Casual on a railway bank at Wells; *Miss Livett*. Tor Hill sand-pit, 1832; *Herb. Clark*. On the railway between Bathampton and Bathford; *Rev. L. Blomefield*.

The Avon valley plant is, I believe, the var. *strictius* Koch. A similar form grows on quarry rubble in northern districts. The name was given by Herr Freyn and is synonymous with *T. Brittingeri* of Weitenweber.

Earliest local record:—" *Lagopus perpusillus supinus perclegans maritimus Lobelii*. Coast . . . Weston-super-Mare, Somersetshire, Julio 1726." (Determined by Mr. Druce=*T. arvense* L. var. *perpusillum* DC.); *Herb. Dillenius*.

### 236. *T. striatum* L. *Soft Knotted Trefoil*.

Native; on dry banks and rocky ground, rather common. June and July.

**G.** Clifton and Durdham Downs, where rock is exposed and there is shelter from trampling. Slope under the guns on Brandon Hill. Penpole Point. Trooper's Hill, Crew's Hole! *Herb. Stephens*. Plentiful there in a favourable season. Frenchay Common. Rodway Hill. Abundant on the steep banks below Mangotsfield Station. Bury Camp. Pastures between Bitton and Warnley. Wyck Cliffs! *Swayne* in *Withering*; and *Suppl. Fl. Bathon*. On the Severn Beach below New Passage, in plenty 1906 and later. On Trap between Damery Bridge and Falfield.

**S.** Very abundant on dry banks by the G.W.R. between Keynsham and Brislington, with several other trefoils. Railway cutting on the North Somerset line, 150 yards north of Brislington Station; and also nearer Whitechurch. Dry bank in a field between Stanton Drew and Knowl Hill; *D. Fry*. Plentiful on Barrow Hill at 560 feet. On the coast between Portishead and Clevedon. Very fine and abundant in some years on Strawberry, Old Church and Warn's Hills, Clevedon; *D. Fry*. Kewstoke; both on the sands of the Bay and among turf along the ridge from Sand Point to Woodspring. Slopes of Mendip above Ebbor, Draycott, Axbridge etc. Uphill. Brean Down; 1891. Glastonbury Tor; *Fl. Som*. Burnham sands and on Steart Island.

[*T. supinum* Savi.

Alien. From Southern Italy, Greece, etc. It occurred on a fowl-run at Baptist Mills, G., 1911! *Miss Roper*.]

### 237. *T. scabrum* L. *Rough Rigid Trefoil*.

Native; it occurs on dry sandy ground along the coast, and on hillsides inland very much as does the last species, with which this often grows. Rather common. June and July.

**G.** St. Vincent's Rocks; abundant about the earthworks on Observatory Hill. Clifton and Durdham Downs; on the edges of old excavations and where rock crops out. Brandon Hill. Exposed limestone between Redland Green and Westbury Park, 1889 to 1891. Kingsweston Down. Penpole Point! *Dr. Thwaites*. Henbury, 1845; *Herb. Powell*. Severn Beach and sea-bank adjacent. Wyck Rocks; *Swayne*.

**S.** In rough pasture on pennant between Keynsham and Brislington.

Clevedon; *W. E. Green*. On Strawberry, Church, and Hangstone Hills, Clevedon, in plenty; and sparingly on a sea-wall below the old Church. Kewstoke Bay. On Mendip above Ebbor, 1896. Above Draycott at about 400 ft.; and at Uphill; *E. S. Marshall*. Brean; and Burnham; *D. Fry*. Brean Sands! 1898. Tor Hill, Wells; and on Dulcote Hill; *Miss Livett*. Hampton Down! *Miss Peck*. Banner Down, Bath; *C. E. Broome*.

**238. *T. squamosum* L.** *T. maritimum* Huds. *Teasel-headed Clover*.

Native; in sub-maritime pasture land, rare and local. May to July

**G.** "Prope Bristolium, copiose" (as *T. stellatum*); *Hudson, Fl. Angl.* II, p. 326. "Meadow under Cook's Folly Tower, in plenty"; *Sir Jos. Banks*, 27 May, 1767. Noted also by Banks and Lightfoot in 1773 "in a meadow by the River Side beyond the new wellhouse towards Cook's Folly, plentifully." The plant still grows in the meadow and by the river-bank, in some years luxuriantly. I have recorded that in 1880 one specimen bore 241 heads of flowers averaging 40 in a head, or a total of 9,640 individual flowers. Nothing approaching this has been observed since. A few plants in the Avonside salt-marsh a little way above Shirehampton Ferry. Hotwells; *Thwaites* in *Swete, Fl.* "Upon a high bank by the River Side, just above Aust Passage"; *Banks and Lightfoot*, 1773. New Passage, abundantly, 1869; *Dr. St. Brody*.

**S.** On banks bounding a salt-marsh at Portishead! *Mrs. Gregory* and *Miss Livett*. In plenty about the Pill and on the sea-banks below Clevedon. Weston-super-Mare and Uphill; *Mrs. Gregory* and *A. E. Burr*. Abundant by the Axe near Brean; *D. Fry*. Banwell; *W. Christy* in *New Bot. G.* (as *T. ochroleucum*). Burnham; *W. R. Crotch* in *Herb. Stephens*. On the sea-bank between Burnham and Highbridge, growing abundantly where, for a short space, alluvium displaces the sand; and on sea-banks by the Parret at Huntspill below Highbridge, 1888; *D. Fry*. This confirms an old record by Sir W. Trevelyan, who appears to have sent specimens of *T. maritimum* to Watson from Huntspill. Yarley Hill near Wells, formerly known by Miss Livett, who now writes—"The old lane on the top of Yarley Hill where this and other interesting things grew has been taken into the bordering field and ploughed up. I could find nothing when I was there last."

"In Mid-Somerset this plant seems to mark very curiously the position of the old shore line, at a time when Glastonbury Moor was still an arm of the sea. It grows about three miles west of Wells, in an old lane [see above] running along the side of a hill which slopes somewhat steeply down to the moor. This station is about 12 miles in a direct line from the sea. I find it also in the parish of Barton St. David, marking the extreme limit of the moor, at a distance of over 17 miles from the sea."—*Murray* in *Journ. Bot.* 1882, p. 328.

**239. *T. subterraneum* L.** *Subterranean Trefoil*.

Native; always in turf on dry well-drained ground. Rather rare.

April to June.

**G.** St. Vincent's Rocks; *Shiercliff's Guide* for 1789. Plentiful in the turf skirting the Observatory Hill. Brandon Hill; *Stephens* and *Flower* in *Swete*.



Abundant there on the upper slopes. Kingsweston Down. Frenchay Common. Mangotsfield Common near Bath; *Swayne* in *Withering*, III, p. 648 (1796); and *Flower* in *Fl. Bathon. Suppl.* This will be Rodway Hill and Siston Common, where the plant still grows. Hanham; *Thwaites* in *Swete*. Pasture between Thornbury and Aust. Stone; abundant on slopes over Trap rock!

**S.** Pasture between Flax Bourton and Failand. Keynsham, 1826; *Herb. Clark*; and *Herb. Stephens*. The locality is about a mile from Keynsham in rough sandstone pasture; and doubtless is the same as that noted near Avon Farm by Mr. Flower in *Fl. Bathon. Suppl.* Church Hill and elsewhere at Clevedon; *W. E. Green*. Field near Christ Church, Clevedon; and at Weston-in-Gordano; *D. Fry*. Hill above Walton-in-Gordano; *Miss Livett*.

**240. *T. suffocatum* L. Dense-flowered Trefoil.**

Native; in sandy turf. Very rare and possibly extinct.

Should be looked for early in June.

**S.** "Sparingly on the Strand, Weston-super-Mare; *T. B. Flower, MS.*" Note for *Topogr. Bot.* by H. C. Watson, who queries the plant as "Extinct?" Mr. Flower told the writer (March 9, 1892) that, being at the time a very young botanist, he sent the specimens away to some botanical authority for confirmation and did not keep any for himself. Before visiting the spot again it was laid out for building and no more could be found. The locality was a most suitable and likely one for the plant. There is no Somerset example in Mr. Flower's herbarium. It is noted at Lilstock, South Somerset, by the Rev. J. C. Collins; and has recently been found at Minehead by the Rev. E. S. Marshall.

I have followed the *Flora of Somerset* in giving *T. suffocatum* a number; the more readily as I confidently expect it to be rediscovered some day on the shores of N. Somerset.

**241. *T. repens* L. White\* or Dutch Clover.**

Native; very common everywhere.

May to September.

The rose-pink or purplish variety, *rubescens* Ser. (*Townsendii* Bab.) was found some years ago at Clevedon by Mr. W. E. Green.

In wet seasons a proliferated form is frequently met with. This has heads of foliaceous petals, or sometimes green umbels with long pedicels. The condition is described in *Vegetable Teratology* by Dr. Maxwell T. Masters as due to "a reversion of the outer whorls of the flower to leaves, or even to a leaf-like condition of the pistil." It happens rather curiously that only one other species of clover is subject to monstrous growths of the kind,—commented on by How and Merrett more than 250 years ago under the name of *T. "flore viridi foliaceo elegans;"* and by Ray, as "*T. alb. umbella siliquosa.*" "*Trifolium repens* is here [Bristol] called honey-suck, a name that might be applied perhaps to primroses and any other flowers from which good honey may be sucked."—*S. Rootsey* in *Trans. Med.-Bot. Soc. of London*, p. 198 (1834).

**242. *T. hybridum* L. Alsike Clover.**

Alien; a good deal cultivated of late years as a fodder plant. Although of recent introduction it has rapidly become established, and is now of

increasingly frequent occurrence on roadsides and the borders of fields.

June to September.

**G.** In the Black Rock Quarry, 1883-5. By the tow-path between the Black Rock and Sea Mills, 1890-4. St. Philip's, Bristol, 1890 to 1905. Railway bank by Henbury Station. Approach to Filton Station, 1904. Border of a cornfield at Patchway. Fields near Folly Bridge and Lyde Green. For a few yards by a roadside near Pucklechurch. Hallen, and Oxleaze near Hambrook; *Miss Roper*.

**S.** Along field roads between Ashton Gate and Bedminster Down, and about some dismantled iron-works near at hand. Abbotsleigh. Long Ashton. Nailsea, on the borders of two grass fields. Tickenham Hill, 1906. Clevedon. Congresbury and Winscombe; *D. Fry*. Brean Down; *Melville*, and Cheddar; *J. G. Baker* in *Fl. Som.* Brislington. Stockwood. Pensford. Frequent on roadsides and the edges of cornfields near Keynsham, Saltford, Stanton Drew and Norton Malreward; *D. Fry*. Duncorn Hill. Radstock.

**VAR. elegans Savi.** With decumbent stems and small heads. This is said to be the prevailing form in some counties, but I have identified it in only two or three spots at Bristol. Mrs. Gregory had it by the Uphill Ferry in 1895; and Miss Livett reports it from Winscombe and Nailsea.

Sometimes *T. hybridum* is viviparous or proliferous in the same degree as with the last species. Abundant with foliaceous sepals on the waste ground by Avonmouth Docks in 1910.

#### 243. *T. fragiferum* L. *Strawberry-headed Trefoil.*

Native; usually in pastures near salt water, but often inland. Frequent. It cannot escape notice when in fruit, but may sometimes be passed over in the flowering stage.

July and August.

**G.** Near the Avon at Sea Mills! Under St. Vincent's Rocks; *Dr. Stephens* in *Swete*. Shirehampton; *T. B. Flower*, 1841; and *Herb. Powell*. In the Black Rock Quarry, 1883-5. St. Philip's Marsh, Bristol! *Herb. Stephens*. Horfield Common; *Swete* and *W. E. Green*. Severn Road, Hallen. Siston Common! *C. Bucknall*. In a rough pasture at Calebs near Northwoods, Winterbourne. By the Severn sea-banks at intervals from Berkeley downwards nearly to Avonmouth. Scattered freely over Inglestone Common east of Wickwar. Dyrham. Roadside bank near Hillsley.

**S.** A patch in Ashton Fields close to Rownham; noticed there by *Swete*. Chewton Keynsham and Maes Knoll; *Miss Roper*. Meadow by the Avon at Newton St. Loe. Very abundant on the banks of the Yeo near Phipps' Bridge; *D. Fry*. Kingston Seymour; *Miss Winter*. Kewstoke Bay, 1892. Abundant on the flats at Woodspring, and in sandy ground S.W. of Weston-super-Mare. Salt-marshes, Uphill! 1894. Roadsides near Edford, Butleigh and Shepton Mallet; *Fl. Som.* Easton near Wells; *Miss Livett*. In thin turf among the sand-hills, and along the roadside adjoining, from Brean to Berrow and Burnham, plentiful. Not uncommon near Bath; *Fl. Bathon*.



**244. *T. resupinatum* L.** *Reversed-flowered Trefoil.*

A colonizing alien; on waste ground, railway sidings etc. Tender, and fugitive in its stations, but no longer very rare. June and July.

**G.** The earliest recorded occurrence of this trefoil in Britain is described by Mr. T. B. Flower (1854) in *Phytol.* V, p. 78. He says that a Mr. Drummond discovered it during the summer of 1830 in the marshes about two miles below Shirehampton; and presented specimens to Sir W. Hooker, and to Mr. Smith, a botanist resident at Shirehampton. Although Smith was conducted to the meadow he could find no trace of the plant in the year following nor later. And Flower himself states that in 1837 and 1839 Mr. Babington and he carefully searched the locality without success; "and having since visited the meadow every summer for the last ten years I am fully satisfied the plant is now lost." This is what might be expected, for we now know that *T. resupinatum* is an annual, rarely fruiting in this climate, and therefore cannot establish itself or become naturalized. At the time, however, the Shirehampton discovery received a good deal of attention—much more in fact than it deserved—in botanical publications; and it led to Bristol being quoted in books as a station for the species many years after it had disappeared. Mr. Flower went on to mention that two or three specimens were all that Drummond met with: there was no abundance, as had been erroneously reported. See *Swete, Fl.* p. 23. A specimen in *Herb. B. Nat. Soc.*, without label or date, is marked "Shirehampton; E. H. Swete."

It was not until the end of the century that fresh local records could be made, as follows:—

Sparingly on rubbish in St. Philip's Marsh, July, 1902. One plant seen there in 1904; and several in 1905–7. Casual at Conham! 1903; *C. Wall.* By the side of a new road from Filton to Stoke Gifford! 1907; *C. Wall.* In 1904 Mr. Wall drew my attention to the appearance on Clifton Down of nine or ten patches amid the turf along a roadside; and I found another at a considerable distance from any path. The range was half a mile or more, from the Upper Belgrave Road to near the edge of the Great Quarry. This curious invasion was, I suppose, due to the scattering of undigested seeds from horse-droppings. The next summer only a very small quantity was observed, and that quite as likely to be of fresh introduction as to have arisen from plants of the previous year. Watercress Farm, Baptist Mills (fowl run), 1911! *Miss Roper.*

**S.** Two patches, two years in succession, in a grass field at Knowle! 1906–7; *Miss Edmonds.* On the site of old iron works in Ashton Vale, 1907. Portishead Station-yard, 1904. Three plants there in 1906; and four in 1907. Two in 1909. On waste ground attached to Holcombe Brewery! 1907; *Mrs. Coleman.* Casual near Twerton; *S. T. Dunn* in *Journ. Bot.* 1897.

The increased importation of foreign grain and forage certainly accounts for the frequency of this plant about seaports at the present day. It is figured in *Eng. Bot.* ed. III.

**245. *T. procumbens* L.** *Hop Trefoil.*

Native; on banks, pasture land and waste ground; very common in dry soils.

June and July.

Abundant along the riverside road and railway under the Downs.

VAR. ***majus* Koch.**

Alien; on waste ground by Avonmouth Docks, July, 1910.

A strong erect plant of 18 inches or more, with large flower heads which do not turn brown as they wither. Precisely matching my Carinthian specimen.

I have not met with the closely allied *T. agrarium* L. with deep golden-yellow flowers, which has been occasionally found as a weed among sown grasses and clover in some parts of this country.

**246. *T. dubium* Sibth.** *T. minus* Sm. *Lesser Yellow Trefoil.*

Native; in meadows and pastures, roadside turf, wall-tops etc. Very common throughout the district.

May to September.

**247. *T. filiforme* L.** *Least Yellow Trefoil.*

Native; always in the turf of pastures and commons, on both moist and dry ground. Usually associated with the last species. Rather rare.

May to September.

**G.** About the boundary banks of Observatory Hill. On Clifton and Durdham Downs, frequent but of very small growth. Brandon Hill; *Swete, Fl.* Rediscovered there in 1892 by Mr. David Fry. Penpole Point and Kingsweston Down; *Miss Roper*. Plentiful on Siston Common. Frenchay Common. Peak Down, near Dursley.

**S** In a rough pasture between Keynsham and Brislington, with *T. subterraneum*. Dry bank in a field between Stanton Drew and Knowl Hill; in association with *T. striatum*, *T. minus*, *Aira præcox* and *Festuca sciuroides* on the new red sandstone; *D. Fry*. Portishead, in a salt-marsh behind the Esplanade; site of the present lake. Abundant in aboriginal limestone pasture on Weston Lodge Farm—the ridge of Weston Down above Weston-in-Gordano. Church Hill, Clevedon; *D. Fry*. Frequent at Clevedon! *Miss Livett* and *W. E. Green*. Brean Down, sparingly; *E. S. Marshall*. In the lawns of Ellenborough Park, and in several sandy fields at Weston-super-Mare. In the turf of Mells Churchyard; *Miss Roper*. Common on the hills at Bath; *Fl. Bathon*.

A plant very often misunderstood and misreported through confusion with the preceding species. Its flowers are very few, on flexuose pedicels; and their darker tint serves as a good distinction from *T. minus*.

**TRIGONELLA Linn.****248. *T. purpurascens* Lam.** *Falcatula ornithopodioides* Bab. *Bird's Foot.*

Native; in the thin short turf of dry hillsides and commons, and on the edge of cart-tracks; very rare.

May to August.



**G.** St. Vincent's Rocks; *Shiercliff's Guide*, 1789; *Worsley Cat.* in *New Bot. G.* 1835; and *T. Westcombe*, 1849, in *Herb. Br. Mus.* There appears to have been no other record until 1884 when the writer found some good specimens in turf on the top of Observatory Hill, where it grows on dry slopes of the ancient earthworks. Brandon Hill; discovered by Mr. David Fry, May, 1892, on the upper part of the hill in several places and behind the City School. Lamp-lighter's Hall, Shirehampton; *Thwaites* in *Sweete*, and *Herb. Watson*. This record remained without confirmation until July, 1894, when Mr. C. Bucknall detected a small number of plants close to Shirehampton Ferry. Some were still there in 1909. Abundant on some old mole-hills, mounds and banks, as well as along the sides of cart-tracks, on Siston Common, 1898 and subsequently! *D. Fry*. Frenchay Common, in several spots where sandstone rock reaches the surface.

**S.** Brean Down! 1905; *Miss W. M. Mather*. Near Sand Point, in short turf, 1890; *Rev. T. Allin* in *Fl. Som.*

With us this is a tiny and inconspicuous thing, far smaller in its growth here than on the coasts of Devon and Cornwall, where the stems are often six or more inches long as compared with our specimens of one to two inches. The plants spread flat upon the turfy ground among the grass-roots, and when intermingled with the foliage of other trefoils are not easy to discern. The best plan is to sit down and examine the turf around foot by foot. Surprise should not be felt therefore that this species at Bristol remained so long unrecognized, for unless specially hunted for it will rarely be perceived.

[*T. cærulea* Ser.

An alien from Central and Eastern Europe, which is obtaining a footing by mills and railways in many parts of the Kingdom.

**G.** Abundant on rubbish in St. Philip's Marsh, Bristol; yearly 1900 to 1909. Watercress Farm, Baptist Mills, 1911! *I. W. Evans*.

**S.** Embankment of a new road at Ashton Gate, 1906. Rubbish-tip at St. Anne's, Brislington! 1906; *Miss Brooks*. Wraxall; *Miss Agnes Fry*. Plentiful in some seasons on corn-mill refuse in Portishead Station-yard, 1904-9. Old Lias quarry between Twerton and Englishcombe, 1897; *S. T. Dunn* in *Journ. Bot.* Still there in 1902!]

[*T. polycerata* L.

Casual at St. Philip's, Bristol, July, 1902. And at Portishead Dock, 1905-7.]

## LOTUS Linn.

### 249. *L. corniculatus* L. Common Bird's-foot Trefoil.

Native; on grassy roadsides, banks and pasture land; very common.

May to September.

An attenuate straggling form—two feet or so—with few flowers, from moist shaded hedge-bottoms etc., may be mistaken for *L. tenuis*.

VAR. *villosus* Ser.

**S.** Portishead; *Miss Roper*. Clevedon; *S. T. Dunn*. Brean Down; *Mrs. Gregory*. On Milton Hill, Wells; *Miss Livett*.

VAR. *crassifolius* Pers.

Dolebury; *Mrs. Gregory*. Coast sand-hills at Brean, Berrow and Burnham; and on Steart Island. Kewstoke Bay.

This appears to be merely a state due to marine exposure, an influence that thickens and hardens the tissues of many species.

"In Hampshire *Lotus corniculatus* is called dead-men's fingers, but in the vicinity of Bristol the plant has various names—fingers and toes, devil's fingers, devil's claws, and crow-toes. The last seems to point it out as the tufted crow-toe of Milton's *Lycidas*."—*S. Rootsey* in *Trans. Med.-Bot. Society of London* (1832).

**250. *L. tenuis* W. & K.** *Slender Bird's-foot Trefoil.*

Native; in pastures and waste grassy spots. Rare. June to September.

**G.** Meadows near Sea Mills; *Herb. Flower*. "Abundant in meadows below Cook's Folly, near Bristol; supposed to be *Lotus diffusus* of Turner and Sowerby [*Trans. Linn. Soc. V*, p. 238]—hairs close pressed all over the plant." Note by *J. de Carle Sowerby* on the sketch for *Eng. Bot. Suppl.* Dec. 1, 1829. Ashley Hill; *W. E. Green*. Rough pasture near Northwoods, W. of Winterbourne, July, 1904! *Miss Roper*. Roadside and quarry near Damery Bridge. Dyrham.

**S.** Bank of Avon under Leigh Woods, nearly opposite Sea Mills. Walton-in-Gordano; *D. Fry*. Walton Down, Clevedon; *Fl. Som.* By the Yeo between Compton Martin and Ubley; *C. E. Salmon*. Brean Sands. Easton, near Wells; *Miss Livett*. Combe Hay, near the tulip fields.

**251. *L. uliginosus* Schk.** *L. major* Scop. *Greater Bird's-foot Trefoil.*

Native; usually on ditch banks and wet ground. Common, and generally distributed in suitable localities. June to August.

Abundant throughout our marsh lands and peat moors, as well as on the tableland of Mendip about the Charterhouse and Priddy bogs. Ascends to 900 feet or thereabout, and near that elevation is found in the corners of dry limestone pastures away from all other marsh plants—positions that may perhaps mark the sites of old filled-up ponds or spots where drainage is deficient.

[*L. angustissimus* *L.* crept into old Bristol plant-lists through an error. Returning from a botanical journey through the West of England in the summer of 1799, Dawson Turner and James Sowerby published an account of their gatherings in *Trans. Linn. Soc. v*, p. 238; and mentioned "*L. diffusus*" as being "plentiful in marshes below Cooke's Folly near Bristol." This record was understood by Sowerby's sons to refer to *Lotus tenuis*; but as at that time "*diffusus*" was a name by which *L. angustissimus* was known, it was taken to mean the latter by Sir J. E. Smith in his *Flor. Brit.*, and that entry was copied into many other books. For instance, Chilcott's Clifton Guide for 1846 has a list of plants that includes *L. angustissimus* from Sowerby's locality, and Swete's *Flora* has it also, although the latter author suspected an error and its nature. In reality *L. angustissimus* is a rarity peculiar to a few southern sea-coasts, and has never been seen in Somerset or Gloucestershire.]

## ANTHYLLIS *Linn.*

**252. *A. Vulneraria* L.** *Common Kidney Vetch. Lady's Finger.*

Native; in dry, hilly pastures with no special liking for the coast in this district. Rather common, but local. June to August.

The specific name given to the plant by Linneus indicates its old reputation for stanching wounds.



**G.** Clifton and Durdham Downs, and rocky banks along the Avonmouth railway. Border of a cornfield at Lawrence Weston, 1833; *Herb. Powell*. Wyck Rocks; *Swayne* in *Withering*. Railway banks, Winterbourne and Henbury. Hill pastures above Wotton-under-Edge; Dursley; Hillsley and Hawkesbury. In profusion on Tytherington Hill.

**S.** Limestone slopes by the Avon under Leigh Woods. Hillsides at Providence Place and Ashton Tump. Bedminster and Long Ashton; *Swete, Fl.* Grassy wastes by the side of the upper Clevedon Road from the Failand Inn to Tickenham, in unusual quantity. Under Fox's Wood, Brislington, and on rough ground by the G.W.R. near Hanham Ferry. Very abundant on Ursleigh Hill near Pensford, and on the high ground between Publow and Queen Charlton. Whitchurch. Clevedon, in several places. The Battery Point, Portishead, not seen recently. Hillsides and upland pasture above Congresbury, Axbridge and Cheddar. Winterhead, Sidcot, and Shipham. Worle Hill. Milton. Bleadon Hill. Sandy shore between Weston-super-Mare and Uphill. Sand-hills on the coast about Burnham. Buckland Dinham and Great Elm, 1886. South Stoke. On the hills, common; *Fl. Bathon*.

### ASTRAGALUS *Linn.*

#### 253. *A. danicus* *Retz.* *A. hypoglottis* *L.*

Native; on dry hills, very rare.

June and July.

**G.** My knowledge of the occurrence of this rarity in the Bristol district is founded on a list of Dursley plants lately furnished to me by Miss Gingell, a lady at one time resident at that town. I am informed that she never attempted to make a collection, and so did not keep examples; but when any noteworthy wild flowers came under her notice she made a practice of taking or sending specimens for exhibition at meetings of the Birmingham Natural History and Microscopical Society. It is on record that, at a meeting of the Society held July 10, 1888, specimens of *A. danicus* were exhibited for Miss Gingell by Mr. J. E. Bagnall, A.L.S., who at the same meeting received from Earl Spencer the Darwin Gold Medal—that year awarded to Botany. Passing as they did through Mr. Bagnall's hands there cannot be the slightest doubt that the specimens were what they purported to be. I have seen a report of the meeting, mentioning the plant, in a Birmingham newspaper of the date; and this exhibit was also noted in the *Midland Naturalist* for 1888, vol. xi, p. 215. Miss Gingell's locality, marked for me on her Ordnance map, was about half a mile east of Breakheart Hill. Although the evidence, being circumstantial, is not entirely what we would wish for, it is I think conclusive. In the time at my disposal I have not been able to make repeated search, but I think we may certainly look forward to the plant's rediscovery when the ground is closely examined at the proper time.

*A. danicus* is not on record for West Gloucester in *Topogr. Bot.* It has, however, been reported from Painswick in the eastern division of the county; and I possess a specimen, gathered by Dr. J. Knapp, labelled "Cotswold Hills";

July 1843." Mr. S. J. Coley, too, informs me that the name appears in a list of plants gathered in the vicinity of Stroud by the late Rev. G. W. Sandys, M.A. Being present also in S. Wilts, there is no geographical reason why the species should be absent from West Gloucester.

**254. A. glycyphyllos L.** *Wild Liquorice.*

Native; on warm banks and wood borders. Local or having a gregarious tendency; that is, usually abundant in localities widely separated from one another and seldom scattered, although occurring in a good many spots. Frequent in North Somerset; much rarer in West Gloucester. July and August.

**G.** Southern edge of the wood on Henbury Hill, for a quarter of a mile or so. On the border of Creswick Wood, Hanham Abbots; *C. Withers*. Sea Mills; *Thwaites* in *Sweete*. No recent record from that neighbourhood. Wapping Wharf, Bristol Harbour, 1911.

**S.** Portishead; reported by many botanists, and specimens preserved in several herbaria. The locality is towards Weston-in-Gordano, along the warm wood border that skirts the Clapton valley. Grassy bank on the S.W. boundary of the Station-yard at Portishead in several spots; first noticed in 1905. Between Easton-in-Gordano and the Channel, 1905. Failand, 1906, a plucked specimen seen by Mr. David Fry. One small patch in a field close to the road from Failand to Pill; *Miss Agnes Fry*. Field border by Jubbs's Wood, Failand; *D. Williams*. In good quantity on high ground above the left bank of the Chew below Compton Dando. Tucking Mills near Compton Dando; *D. Fry*. Some fine plants by a canal behind the cloth mills at Twerton, 1889. Several by the riverside at Bath, between the Bridge and the Gas Works, 1886; *D. Fry*. Kelston; *T. F. Inman* in *Fl. Som.* By the canal near Midford, and beyond towards Norton St. Philip; *A. E. Burr*. Smallcombe Wood, Bath; *Herb. Flower*. Frequent east of Bath; *Suppl. Fl. Bathon.* Rough bushy bank at Egford near Frome; *Miss Livett*. Edge of coppice at Old Ford between Frome and Beckington; *D. Fry*. Not uncommon about Buckland Dinham etc. on the eastern border of the district; *Dr. H. F. Parsons*.

**CORONILLA Linn.**

**255. C. varia L.**

An alien of increasing frequency in waste places. Sometimes an outcast from gardens: more usually introduced by the handling of imported grain and railway traffic. It is an ornamental plant, bearing on long peduncles umbels of elegant lilac and white flowers. June to August.

**G.** On dredgings deposited in the Black Rock Quarry, 1884-5. Small colliery heap between Kingswood and Hanham, 1885-8; now lost. Disused railway siding at Pilning, 1897-9. A large patch on a roadside bank near the Cottage Hospital at Winterbourne, 1903-10; without doubt originating from gardens above. A large patch on the edge of a wood near Dursley, 1908; *W. E. Loxton*.



**S.** Embankment of a new road near Ashton Gate, 1906. Refuse heap near St. Anne's, Brislington, 1906-7. By the sidings in Portishead Station-yard, 1904-8. Established for many years on walls around the Bishop's Palace at Wells; *Miss Livett*. "In a wood above Somerleaze on Ben Knowle Hill, near Wells, sparingly and casual"; *Journ. Bot.* 1871, p. 8.

### VICIA Linn.

#### 256. *V. hirsuta* S. F. Gray. *Ervum hirsutum* Sm. *Hairy Tare*.

Native; on hedgebanks, field borders and waste ground. Frequent and well distributed. June to August.

**G.** Along the riverside banks and railway at Sea Mills and Shirehampton, plentiful in some places. Conham and Hanham, near the Avon. Dry banks in Glen Frome under Stapleton and at Frenchay. Kingsweston. Rodway Hill near Mangotsfield. Railway bank at Iron Acton. Nibley Knoll. In the mowing grass of a disused clay-field on Yate Lower Common.

**S.** Knowle. Between Brislington and Keynsham. Saltford. Nailsea. Kenn. Yatton. Clevedon. Pill. Portishead, in several places. Between Worle and Kewstoke; *Rev. E. S. Marshall*. Weston-super-Mare. Here and there along the Cheddar Valley Railway. Wookey. Wells. Plentiful on Steep Holm.

W. Marshall in *Rural Economy of Gloucestershire* (1789) says:—"Dill, *ervum hirsutum* 2-seeded tare, has been cultivated (on the Cotswold Hills at least) time immemorial; principally for hay." Dill is an old name for (among other things) vetches and tares. I know nothing further about the local cultivation of *Vicia hirsuta*.

#### 257. *V. gemella* Crantz. *V. tetrasperma* Moench. *Smooth or Four-seeded Tare*.

Native; on grassy banks etc. generally in the same situations as the last species. Rather common. June to August.

**G.** By the riverside under Sneyd Park, and about Sea Mills in several spots. Near the old spelter-works at Conham; *D. Fry*. By Berwick Wood, Henbury; *S. G. Perceval*. Winterbourne. In mowing grass between Rangeworthy and Hall End. Between Charfield and Stone; and on hedgebanks towards Nibley Knoll. On the slopes of Breakheart Hill at Dursley.

**S.** Formerly in bushy spots by the Water Company's reservoir, Leigh Woods; now enclosed. Bishopsworth; *J. F. Hopkins*. Hedgebank and wood border near Portbury. Brislington, Keynsham, and in two or three places at Stanton Drew; *D. Fry*. Ursleigh Hill, in plenty. On the Congresbury roadside near Yatton. Very abundant by the railway at Sandford and Banwell Station. Weston-super-Mare. Brean Down. Mark Moor! *Mrs. Sandwith*. Barrow Hill; *Fl. Bathon*.

Mr. J. F. Hopkins reported that a more slender, one-flowered form (*var. tenuissimu* Druce) is abundant in one place at Bishopsworth near Dundry.

**258. *V. gracilis* Lois.**

Native ; in rough hilly pastures, very rare.

June and July.

**S.** On Barrow Hill, between Twerton and Englishcombe ; observed there by the late Prof. Babington in 1839, *Fl. Bathon. Suppl.* p. 74 ; which is the first record for the species in Great Britain. Barrow Hill, 1854 and 1860 ; *Herb. Flower.* Rediscovered there in 1886 by Mr. David Fry, who found it still existing in fair, but by no means in abundant, quantity. Cornfield near Keynsham, 1871 ; *T. B. Flower* in *Herb. Watson.* Under the hedge of a pasture on Ursleigh Hill, adjoining the *Vicia bithynica* ground, 1887 to 1907 ! *D. Fry.* Sparingly near Midford in a rough hilly pasture, 1884 ; *A. E. Burr.* Mr. Burr saw it there in several summers. Hedgebank in an old lane on Yarley Hill near Wookey, about four miles from Wells ! *Miss Livett.* The bank has since been ploughed and the hedge grubbed.

On account of its likeness to *V. gemella* it is possible that this may be sometimes passed over, and thus may not actually be so rare as appears from my notes. The Barrow Hill plant, for example, has only single-flowered peduncles, and its pods are not more than five-seeded, marking a weak state. But ordinarily, the larger flowers, much longer peduncles and more numerous seeds, with a stouter and stiffer habit of growth should suffice to readily separate the two species. And the very differently shaped hilum of the seed is an important character. Dr. Boswell Syme, in *Engl. Bot.* remarks that "the length of the hilum appears a constant character in all the vetches," a conclusion which Mr. Fry's observations and my own tend to confirm.

**259. *V. sylvatica* L. Wood Vetch.**

Native ; in open woods and thickets. While common on the Somerset side of Bristol, it is very nearly absent from the Gloucestershire division of the district ; thus providing a puzzle in plant distribution that will be extremely difficult to solve. Although it touches the county boundary below Leigh Woods along half a mile of the Avon river-bank, it seems never to have had a station on the other side\* ; and one must travel eastward to the flank of Lansdown ; to Stickstey Wood beyond Hillsley (*F. Samson*) ; or northward across the Severn to the Wye near Tintern, before reaching a Gloucestershire locality for this vetch.

May to August.

**G.** Beach Wood, close to the Monument on Lansdown ; *Swayne* in *Withering* (1796). It is probable that this is the record upon which Canon Ellacombe relied in the *History of Bitton*, pub. 1870, where *V. sylvatica* is included in the list of plants to be found in his parish (the spot not specified). Bitton is a large parish. It extends to the Somerset border under Lansdown ; and Beach Wood lies on the county boundary within a gunshot of the Grenville Monument.

**S.** Abundant along the riverside border of Leigh Woods opposite Sea Mills. Still in plenty at Stockwood, as noted long ago by Drs. Swete and Stephens.

\* There is no confirmation of the statement by an anonymous correspondent in the *Phytologist*, N.S. 1859, p. 245, that *V. sylvatica* had been seen "on both sides of the Bristol Avon."



Whitchurch and Bishopsworth: *Swete, Fl.* Wood close to Flax Bourton Station. Limeridge Wood above Tickenham. Easton-in-Gordano; *D. Williams*. Portbury. Portishead Wood and about the woodland extending towards Weston-in-Gordano. Clevedon. Near Stanton Wick, and woods towards Clutton and Marksbury. Very abundant near Farrington Gurney, and at Leigh-on-Mendip; *D. Fry*. Compton Martin Wood, 1911; noted there in *Rutter's History*, 1829. Hedges about Chewton Mendip, Litton and East Harptree; *Miss Roper*. Hutton. Skirt of woodland above Congresbury, and on Col. Long's estate. Old pack-horse lane between Shuteshelve and Winscombe; *H. S. Thompson*. Cheddar Wood. The Long Bottom near Cheddar; *Fl. Som.* In several spots close to Wells; *Miss Livett*. Between Norton St. Philip and Wellow, on oolite; and in Asham Wood between Nunney and Downhead, on limestone, *Dr. H. F. Parsons*. Wood on Fortnight Farm. Brass Knocker Wood; *D. Fry*. Smokhall Wood near Bath; *Scientific Tourist* (1818). Frequent near Bath; *Fl. Bathon*.

The earliest local (and British) records are the following:—"Vicia maxima sylvatica, nondum descripta, . . . In a wood nigh Bathe."—*Johnson, Merc. Bot.* p. 76 (1634). "Vicia Bathoniensis vel maxime sylvatica. In Smoak Hall Wood, by the Bathe."—*Merrett, Pinax* p. 125 (1666).

"The late Mr. Leo H. Grindon of Manchester, author of many charmingly written books on natural history, who was a Bristolian, told me that he well remembered gathering *V. sylvatica* at Stockwood, when as a young man he used to rise very early in the Summer mornings in order to spend as many hours as possible in botanizing before going to his daily business in the City."—*D. Fry*.

## 260. V. Orobus DC. Bitter Vetch.

Native; in hill pastures on Mendip. Very rare.

June and July.

**S.** In two fields on Tining Farm under Blackdown, and in another nearer Cheddar; plentiful in those seasons when the pasture is not grazed but laid down for hay. Some of the plants have white flowers. East Harptree, June, 1850; *Herb. Lawrence*. In a field called "Buckleys" in the parish of East Harptree, 1859; *Herb. Flower*. In a dry pit on Mendip, near Emborough Ponds, just by a stone stile against the sluice that divides the ponds; *Bot. Guide* (1805). Emborough Ponds near Old Down, Bath, 1859; *T. B. Flower* in *Herb. Clark*. The plant is now gone from Emborough, but Mr. Flower's record points to a comparatively recent disappearance. His label, although correct as a postal address, is confusing; Old Down being many miles from Bath. Between Stoke St. Michael and Coleford, two or three miles up stream from Mells, July, 1902; *Miss C. E. Horner* in Murray's MS.

## 261. V. Cracca L. Hedge Vetch. Tufted Vetch.

Native; in hedges and waste grassy places, very common and widely diffused. One of the most beautiful ornaments of our country lanes. June to August.

[*V. tenuifolia* Roth. *Cracca tenuifolia* Godron.

Casual. A handsome trailing vetch with large trusses of pale blue-violet and white flowers; fairly common throughout France and Southern Europe. Conspicuous in 1911 among a collection of scrapped machinery and ironwork by the G.W.R. at Redminster.]

**262. V. bithynica L.** *Bithynian Vetch.*

Native; in bushy and hilly places. Rare, and remarkably uncertain in quantity from year to year. June to October.

**G.** Plentiful in a wood [Powder House Wood] by the side of the Avon near Shirehampton; *T. B. Flower* in *Phytol.* I, p. 68 (1841). Powder House Wood, Shirehampton; *Swete, Fl.* (1854). These duplicate records have not been confirmed, and no specimen has come under my notice. An error may be suspected for several reasons. In writing his book Swete relied a good deal on botanical information supplied by Flower. If the latter—in 1841 he was a very young botanist—mistook another vetch for *V. bithynica* near Shirehampton, Swete would not have detected the error but would certainly have credited Flower's report and have adopted it for the *Fl. Brit.* For he records *V. bithynica* from St. Vincent's Rocks and the "Green Valley," Clifton Down, as on Flower's authority; when we know that the plant growing at those spots was a narrow-leaved form of *Lathyrus montanus*. And Swete makes no mention of the *Lathyrus* in his work; showing, of course, that although fairly common he had not recognized it, and must have confused it with something else. Neither could Flower have reported it to him. As regards the Clifton localities Mr. Flower, in correspondence, laid the muddle at Dr. Swete's door; but I think it is permissible to conclude, on the evidence, that he himself in his earlier years misunderstood the plants.

Neither of those esteemed Bristol botanists, Miss Anna Worsley and Dr. Thwaites, cited the species from West Gloucester in their catalogues checked for the ten mile circuit. Referring to North Somerset for a moment, it may here be mentioned that the lady sent Watson a Bristol specimen before 1835; anticipating Thwaites whose list dated from 1844. It was not until 1905 that the present generation of local botanists could find a Gloucestershire station for this plant. Then Mr. C. Bucknall got it on the high bank of a sunken lane between Stoke Gifford and Winterbourne, where Mr. F. Beames also discovered it independently a little later. It grows on both banks of the lane in very moderate quantity, but owing to the quite unnecessary chopping and trimming lately undertaken by rural road-men the vetch has no chance of spreading, and but little of maintaining itself. In 1910 I noticed a few plants in another spot on the same roadside, but about half a mile nearer Winterbourne: in flower Sept. 21.

**S.** Bedminster; *Worsley Cat.* in *New B.G.* Stockwood Lane, between Brislington and Whitchurch; *Herb. Stephens*. Still there at the present time. In plenty on a high bushy bank by the road from Publow to Queen Charlton, about a mile from Publow Church! August, 1886; all then in pod with many ripe seeds. Two months later, on October 5th, there was a fresh crop of plants in flower; *D. Fry*. In fields to the east of the Bristol road, near the top of Ursleigh Hill towards Pensford, some years in great abundance! *D. Fry*. It grows here in a field-hedge and in a lane below, as well as largely among grass in the meadows. Later, in some seasons, the same autumnal growth and flowering take place as at the Publow habitat. Abundant



on the side of a hill between Keynsham and Pensford, and on another hill to the north of Pensford; *T. B. Flower*. These localities of Mr. Flower's appear to be duplicates of those described by Mr. Swayne in *Withering* ed. iii, (1796), under the head of *Lathyrus hirsutus*. They correspond exactly to the two last-mentioned stations reported by Mr. David Fry. Very sparingly on high ground above the left bank of the Chew below Compton Dando; and on a hedgebank in the lane to Chewton Keynsham at no great distance. A few plants between Stanton Drew and Norton Malreward on a hedgebank by the roadside; and a few also on the other side of the road; *D. Fry*. Bank of the Yeo reservoir, Butcombe, June, 1905! *H. Fisher*. Mr. Fry thinks that Leo Grindon has recorded it from Butcombe. Abundant at Cleeve, 1880; *T. B. Flower*. Unfortunately, I omitted to ask Mr. Flower to describe his locality more exactly. I do not know it. There are many places so named. Casual near the corn-mill by Portishead Station! 1900; *Mrs. Gregory*. Still there, covering a large space, in June, 1907 and in 1909. Easton near Wells; *Miss M. Mayow*. Yarley Hill, four miles west of Wells; *Miss Livett*.

It will be seen that, in this district, *V. bithynica* has suffered a good deal from imperfect knowledge and misreporting.

There seems to be some confusion among authorities as to the duration of this species, for whilst Boswell and Bentham regard it as an annual, Babington and Hooker consider it perennial. From the thick, hard, woody nature of the rootstock the latter view might seem to be correct; but by frequent observation of the plant at some of its habitats, as well as by cultivation in his garden, Mr. Fry concluded that it is an annual.

We have both forms of this vetch in the district; sometimes they grow together. The type is the prevalent form, but there occur occasionally excellent examples of *VAR. angustifolia* Syme, which differs in having very acute linear leaves. Specimens from Butcombe and from Portishead are remarkable for possessing an extra leaflet or two in addition to the regulation two pairs.

At Bristol the plant very nearly reaches its northern limit. I believe one other locality for it is known in the county of Gloucester besides that mentioned above; but it is entirely absent from Herefordshire, Monmouth and Warwick, and has but half a dozen stations in Wales and the North.

### 263. *V. sepium* L. *Common Bush Vetch*.

Native; in hedges and bushy places, very common. April to July.

The sub-variety *alba* of Rouy, with pure white flowers, is rare. It is a beautiful form. We have it at Frampton Cotterell, Glouc. In Somerset it grows by the canal at Combe Hay; and in larger quantity on a moist mossy bank on Burledge Hill above North Widcombe, between Stowey and Nine Elms. Lane at Weston near Bath, 1895; *D. Fry*.

### 264. *V. hybrida* L.

Formerly on Glastonbury Tor and possibly native there. Now extinct. It is an occasional casual on cultivated and waste ground near Bristol, springing from imported seed and grain. July and August.

The earliest British record is by Ray, *Cat.* p. 316 (1670).—"Vicia luteo flore sylvestris, J.B. . . . Yellow Vetch with a rough pod. This I sometime found on Glassenbury torre-hill." Figured in *Engl. Bot.* from a specimen sent from Glastonbury, June, 1797, by A. B. Lambert Esq.; who also furnished the British Museum with an example gathered at the same time. Dawson Turner and Borrer got it on the Tor. The latter cultivated it in his garden and sent seeds to Flower, who also raised plants and distributed the seeds. There is a specimen in the Conservatoire Botanique at Geneva from H. C. Watson, grown from Flower's seed. Glastonbury Tor sand-pit, 1832; *Herb. Clark.* And Mr. T. Clark appears to have been the last to gather it there. Casual in a field of mowing grass on the Leigh Court estate, 1888! *J. H. Fryer.* Waste ground, St. Philip's, Bristol, 1902. Portishead Station sidings, 1904.

### 265. *V. lutea* L.

Associated with the last species at Glastonbury for many years; and, like it, may there have been a native, but is now extinct. Casual elsewhere in this district. July and August.

**G.** On dredgings from the Avon and Floating Harbour deposited in the Black Rock Quarry, fine and abundant, 1883-4. Waste ground—city refuse—at St. Philip's, Bristol, 1902-5.

**S.** "Glastonbury Tor Hill, we found this in great plenty, June 1799;" Dawson Turner and James Sowerby. "Sand (not chalk) pit, and sandy fields on Glastonbury Tor Hill." *B.G.* (1805). Sandpit, south side of the Tor, 1832 and 1836; *Herb. Clark.* Specimen also in *Herb. Jenyns*, gathered 1856. Mr. Murray informed me that he found several sheets of specimens from Glastonbury in the British Museum Herbarium—the earliest dating from 1739; and that he believed the plant continued until about 1870. Portishead Station-yard; one plant in 1900, others in 1902, 1904 and 1907. Casual near Twerton, 1897; *S. T. Dunn.* "On the roadside at Midford."—*Dr. Davis* in *Fl. Bathon.* "Either a mistake or now lost."—*Jenyns.*

### 266. *V. sativa* L. *Tare. Common Cultivated Vetch.*

Occurs casually as a stray from cultivation on the borders of fields, along railways etc. As a rule it does not last long or become in any sense established. May to July.

### 267. *V. angustifolia* L. *Wild Vetch.*

Native; on dry grassy banks, waste quarry ground, and coast sand-hills. Too common and well distributed to need localities given in detail.

May to July.

A variety with white flowers has been noticed both in West Gloucester and Somerset. Like the corresponding forms of other species it appears to be permanent, coming true from seed year after year. The flowers of the normal plant have a strikingly beautiful bright crimson hue. They vary a good deal in size, some being nearly twice as large as others.



VAR. *Bobartii* Forster.

This prostrate variety, with small flowers and all the upper leaves very narrowly linear, is frequent on dry sandy soil, such as that about the pennant quarries of the neighbourhood. It shades into the type as a variety should.

"On exposed pennant slopes between Keynsham and Brislington, and more especially in the G.W.R. cutting through the same rock, there is commonly a great display of naturalized *V. sativa* and *V. angustifolia*, presenting a somewhat puzzling series; for though the extreme forms can be recognized without difficulty, it seems to me that *sativa*, *angustifolia* and *Bobartii* all run a good deal one into another."—*D. Fry*.

[*V. villosa* Roth.

Alien. A pretty Continental plant, widely distributed in Europe.

On waste land at St. Philip's, Bristol, July, 1902. It sprang up at Clifton from barley siftings used as poultry food, in June, 1903.

This is allied to *V. Cracca*, but has fewer flowers in the spike and those less pendent and more separated from each other. The petals are of a rich claret colour, quite unlike that of any native vetch; and they also differ in having a prolonged, almost gibbous base or keel. It is very closely connected with the next species, of which some authors, as Koch and Gillet et Magne, make it a variety. Grenier et Godron, however, think it to be distinct, and give (*Flore de France*, p. 479) characters that are by no means strong. Their italicized and therefore most important distinction, "*les fleurs inférieures déjà flétries lorsque les supérieures s'ouvrent*," is opposed to a description given in *Report B. E. Club*, 1902, p. 39, where the flowers are stated to all open at about the same time. The latter character, in fact, belongs to *V. varia*.]

[*V. varia* Host.

Another handsome alien of like origin. Casual at St. Philip's, Bristol, 1902-5. On corn-mill refuse in Portishead Station-yard, 1904-7. Near Bath; *S. T. Dunn* in *Herb. Brit. Mus.*]

[*V. melanops* Sibth.; *V. narbonensis* L.; *V. pannonica* Jacq.; and *V. hyrcanica* F. & G.; have all been detected during the last few years in the company of other aliens near Bristol.]

268. *V. lathyroides* L. *Spring Vetch*.

Native; on grassy sandy turf, chiefly in thin soil about sand-hills on the Channel shore. April to June.

**G.** St. Vincent's Rocks; *Camden's Brit.*, *Gough's ed.* (1789). Near the Old Passage, June, 1867; *Herb. St. Brody*. The sole evidence of the plant's occurrence in the county.

**S.** Kewstoke, in sandy fields, rare; *St. Brody, Fl. Weston*. Plentiful on Kewstoke sands, whence first reported to me in 1880 by the late *Rev. W. H. Painter*. Brean Down; *Dr. St. Brody*, and (years later) *Mrs. Gregory*! Grassy banks on the inner side of the sand-hills below Berrow Church, in plenty. Also nearer Burnham, and about the sea-bank on the southern side of the town. Introduced to me in these localities by *Miss Livett* and *H. S. Thompson*. Steep Holm, 1883; *John Storrie*.

This tiny species intermits in some seasons, as the seeds do not seem to germinate in a cold dry Spring. Even when April is moist and warm, and the plant is abundant, it passes away very quickly, shedding its seed before the sand becomes parched and glowing in summer heat. Withered stems and open valves of the fruit alone remain at the middle of June. It is almost always associated with dwarf plants of *V. angustifolia*. The tyro in search of specimens must therefore be careful to take the right thing: looking, if practicable, at ripe seeds, the characters of which are conclusive.

LATHYRUS *Linn.***269. L. Aphaca L.** *Yellow Vetchling.*

Possibly native in one or two spots; casual in others. Very rare.

June and July.

**G.** Cornfields near Westbury-on-Trym in plenty, 1841; *T. B. Flower*. Swete, too, gives his personal authority for those cornfields. Field near Berwick Lodge, Henbury, not far from "Hispaniola," June, 1835; *Herb. Powell*. Horsfield; *T. B. Flower*. I have no recent note from either of the preceding stations. Three plants on made ground in St. Philip's Marsh, 1902; and two there in 1908. Has occurred as a weed in several gardens at St. George! Near Dyrham; *Dr. Hassé*.

**S.** Bedminster, 1828; *Rootsey's list*. Casual on a rubbish-tip by the Avon at St. Anne's, Brislington! 1907; *Miss Edmonds*. Weston-super-Mare; *Rutter's Hist.* In a field near the Lodge at Ashcombe, Weston-super-Mare, 1904; *Mrs. Gregory*. By the hedge of a field above Uphill Station near the railway cutting in fair quantity; and sparingly in a lane beyond the high bridge; *Mrs. Gregory* and *D. Fry*. Known at Uphill for many years, but I have learnt that the plant does not appear every summer. Mr. Fry, for instance, failed to see a trace of it in 1896, although two years later there was plenty; and on several occasions I have not succeeded in finding any. There is nothing in the surroundings of the spot at Uphill to suggest introduction. Casual in a quarry between Congresbury and Yatton! *Mrs. Foord-Kelcey*. Wedmore; *Thwaites* in *Herb. Watson*. Old lane on Yarley Hill near Wells, where it was known very many years to *Miss M. W. Mayow*, and *Miss Livett*. Cornfield, Rush Hill, Bath, July, 1858; *Herb. Flower*. Glasshouse Farm on Odd Down; *Mrs. Dent Young*. A large patch on the Limpley Stoke Road near Bath: known there for a long period; *Miss C. L. Peck*. Casual at Twerton, 1897; *S. T. Dunn*. In two or three spots near Bathford; *Mrs. Dent Young*. Cornfields at Marshfield and Claverton, and gardens at Bath; *Fl. Bathon*.

So much of the old arable land about Bristol has been laid down to grass through a cessation of corn-growing, that this plant, which in Britain occurs most often as a cornfield weed, has naturally become extinct in many of the localities recorded above.

**270. L. Nissolia L.** *Grass-leaved Vetch.*

Native; on grassy margins of fields and lanes; among low bushes; and often along the well-drained banks of railway lines. Rather rare; but certainly not so scarce as is commonly believed. It is surprisingly capricious as to times and places of appearance; and on account of close resemblance to the grasses among which it grows it can hardly be detected when not in flower.

May to July.

**G.** In plenty on a railway bank at Ashley Hill; *W. B. Waterfall* and *W. E. Green*. Shirehampton Marshes, plentiful, 1835; *Stephens Cat.*; and *Flower* in *Swete*. Still there near the Lamplighters; and lower down the river by the ponds at West Town, pointed out to me by *Miss Roper*. Border of Haw Wood,



June, 1833; and hill behind Norton's Farm, Henbury; *Herb. Powell*. In several places near Hollywood, Hallen and Berwick, 1891-2; *S. G. Perceval*. In the summer of 1902, which was extremely favourable for this plant, Mr. Perceval reported some additional localities to the east of Berwick Wood, where he found the more luxuriant specimens to measure as much as three and a half feet. One plant by the Old Mill, Hanham, 1886; *D. Fry*. In plenty by a quarry near that spot in 1907. By the Midland line near Bitton, 1901-2. Very abundant in a large rough pasture adjoining Caleb's Cottage, Northwoods, and in the green lane leading thereto. Border of a cornfield near Wyck; *Swayne in Withering* (1796); and *Flower in Suppl. Fl. Bathon.* Dyrham; *Dr. Hassé*! The Rockies, Stone; *G. Webb*. Near Berkeley Road Station; *S. Thearle*. By a quarry above Wotton-under-Edge; *Miss Roper*.

**S.** Stockwood; *G. H. K. Thwaites in Swete*, and in *Herb. Brit. Mus.* Abundant in the G.W.R. cutting 200 yards or so east of Fox's Wood Quarries. Also in and on the top of the Saltford cutting G.W.R., as well as near the Midland line at Saltford; shown me by *Mr. D. Fry*. Along hedges on Ursleigh Hill near Pensford, with *Vicia bithynica* and *V. gracilis*; and one or two plants were seen in the lane hard by, 1896 to 1907; *D. Fry*. Abundant on high ground above the left bank of the Chew below Compton Dando; *D. Fry*. Bishopsworth; *E. H. Read*. By the roadside between Bishopsworth and Whitchurch, 1900; *E. E. Owen*. Between Easton-in-Gordano and the Channel, 1905. In a salt-marsh by the railway east of Portishead Dock, 1909. By the coast path near the Nore at Portishead! *Misses Cundall*. On both sides of a green lane across the moor from Clapton to the Portishead road, 1903. It was noted there by Duck in his *Nat. Hist. of Portishead*, pub. 1852. Brean Down; *Mrs. Gregory*. Bank of the Yeo Reservoir, Butcombe; *H. Fisher*. Easton and Yarley near Wells, sparingly; *Miss Livett*. Hinton Blewett; *Wright in Fl. Som.* Several habitats on our south-eastern border (near Frome, etc.) are given in the *Flora of Somerset*.

It is difficult to understand how this annual vetch (Babington stands practically alone in marking it *perennial*) contrives to maintain an existence on ground that is regularly mown for hay before its pods can ripen. This is the case in several spots in our area, notably those on the sides and edges of cuttings on the G.W.R. between Bath and Bristol where the plant, though varying in quantity from year to year, usually appears in great abundance and is cut down every June. The same thing happens with fields of mowing grass near Northwoods by Winterbourne, and elsewhere; but the haymaking there is occasionally so long deferred by the farmers that some seeds doubtless will have matured. Leguminous seeds have been known to retain their vitality through long periods—20, 60 and even 100 years (*Phytol.* IV. p. 290)—a fact that has some bearing on the point under review.

Mr. Fry has found the Grass Vetch very difficult to preserve in cultivation, and the seeds do not germinate readily in a garden.

**[*L. hirsutus* L.]**

A very rare British vetchling that occurs with us only as an alien casual. In July, 1902 Miss Martin of Bath sent me a specimen found by her in a field (old quarry ground) near Englishcombe; and in September, 1903 she gave me another from the same place. A small colony

which existed several years between Bath and Limpley Stoke has been destroyed; *Mrs. Dent Young*. An example in *Herb. St. Brody* is labelled "Reported from Bristol, 1854." Swete's entry in the *Flora Bristolensis* is based on a mistake of the Rev. Geo. Swayne, who recorded in *Withering* (1796) *L. hirsutus* for *Vicia bithynica*, which was the plant he found on hills between Pensford and Bristol. This error, repeated in the old *Bot. Guide*; *Smith's English Flora*; and by Babington in *Suppl. Fl. Bathon.* pub. 1839, on the authority of T. B. Flower who is there stated to have rediscovered *L. hirsutus* in 1838 at both the localities near Pensford referred to by Swayne, has been widely disseminated, not only in local *Floras* but also in works of more general importance, such as *Bentham's Handbook of the British Flora*, where *L. hirsutus* is cited as a Somerset plant.

The descriptions given in one or two of our most widely used Manuals contain no mention of a prominent feature of this species, *viz.* the extremely long peduncles—2 to 5 inches—; and it seems to me that this omission, by withholding a character so easy to grasp, may be responsible for some of the confusion attached to its records.]

[*L. Ochrus* DC. Alien.

A weed of cultivation in the Mediterranean area. About a dozen plants near the mill in Portishead Station-yard, 1909; derived from seed thrown out with screenings of imported grain.]

### 271. *L. pratensis* L. *Meadow Vetchling.*

Native; very common in hedgerows, meadows and pastures throughout the district. June to August.

### 272 *L. tuberosus* L. *Tuberous Vetchling. Peas-earthnut*; Gerard.

Alien; rather frequently met with of late years about Bristol. In most instances it has not maintained itself more than a season or two; only rarely does it thrive and do well. The source of introduction is uncertain. As a showy pea it may have been cultivated in gardens, but some of its situations here are very unlikely to have received roots or seeds by accident, and in them the plant *looks* like a native. Mr. Fry thought that its claim to be considered a Somerset species should have little consideration; still, the probability being that it will stay with us in future, I have given it a number.

Mr. Miller Christy, on reviewing the occurrences of *Lathyrus tuberosus* in this country (*Journ. Bot.* 1910, p. 170), concludes that in all of them it has been an introduced, not an indigenous, species. In France, Holland, Germany and some other Continental countries it grows commonly among standing crops of corn, and so the seeds may be imported with foreign grain.

**G.** A small patch—two square feet—grew among grass close to the towing path by the Avon, about 100 yards above the railway bridge below Sneyd Park. First noticed there in July, 1891 by Miss Ellen Woods of Chalfont St. Peter Vicarage. Several of us saw it in 1892. Then it disappeared altogether. This locality is erroneously described in the *Flora of Berkshire* as situate "on St. Vincent's Rocks at Clifton."

**S.** Near Chelvey away from any dwellinghouse or garden, very sparingly in 1893! *Cecil H. Sp. Perceval* in *Journ. Bot.* 1893, p. 248. In plenty on a hedgebank at West Town, 1896; *C. Bucknall*. This did not last. On an embankment of the G.W.R. west of Keynsham Station, 1907; *Geo. Withers*. Amongst brambles in the overgrown hedge of an old pasture on Wick-house Farm, south of the high road from Bristol to Bath: quite an out-of-the-way spot where it may have thriven a long while. Discovered in 1901, growing up to five or six feet, by a lady who conducted Mr. D. Fry to the place; and it was flourishing in 1904-6-7, but not maturing any seed. A report circulated a few years back that this *Lathyrus* had been long known in some lanes at



Wraxall proved on inquiry to be erroneous. The specimens produced belonged to another genus.

**273. *L. sylvestris* L.** *Narrow-leaved Everlasting Pea.*

Native; chiefly in hedges, frequent.

July and August.

**G.** Great Quarry, Clifton, 1878. Powder House Wood, Shirehampton; *T. B. Flower* in *Phytol.* (1841); and *Swete, Fl.* Still there about the railway at the lower end of the wood and towards Sea Mills Station. Henbury and Berwick; *Herb. Powell.* Berwick Wood; *Miss Thompson.* Black Horse Hill, 1835; *Herb. Bristol Museum.* Passage Road beyond the Black Horse; *J. Foster* in *Swete.* In the hedge of the wood on Black Horse Hill, 1892; *Spencer G. Perceval.* Still there in 1910. In the lane between Compton Greenfield and Hallen. Brains Hill, Kingswood. White Hill copse, Hambrook; *Dr. H. O. Stephens.* Old Down, Tockington; *W. A. Harford.* Aust Cliff; *F. Samson.* "In all the hedges of the low country bordering the River Severn, between King's Weston and the New Passage;" *Smith's Eng. Flora* (1824). A somewhat extravagant statement: there has been no such abundance in my time.

**S.** Hedges about Nailsea and Yatton. Noticed by Dillenius (1726) in hedges by the roadside near Backwell. Clevedon. Portishead, near the beach. Rather plentiful on the edge of the wood between Portishead and Weston-in-Gordano. Easton-in-Gordano; *D. Williams.* In profusion at Ursleigh Hill near Pensford, on the side of the high road opposite to the station for *Vicia bithynica*, with which it does not grow; *D. Fry.* This corresponds with the locality given by *Swayne* in *Withering* (1796), "On a hill near Pensford, with *L. hirsutus*." Near Tucking Mills, Compton Dando; *D. Fry.* Hedgerows between Winscombe and Banwell. Long Bottom near Cheddar; *Fl. Som.* Upland lane near Axbridge. Wookey Lane and Little Elm, Wells; *Miss Livett.* Lane near Dunkerton, and on Fortnight Farm. Common in the woods; *Fl. Bathon. Suppl.* "Inter Bath et Bristol, copiose"; *Huds. Fl. Angl.* p. 316.

[***L. latifolius* L.** *Broad-leaved Everlasting Pea.*

**Alien.** A handsome climber, well known as a garden ornament; and noticed from time to time as an escape or outcast in various localities. These occurrences, in the early days of plant-distribution study, often received exaggerated attention. Thus, Mr. Anderson's statement that the plant was "undoubtedly wild in Stapleton Quarries, Bristol" (*New B. G.* p. 618) was published in *Hooker's British Flora*, and noticed in other botanical works (see *Swete, Fl.* pp. 25, 99). And half a dozen stations about Bath are given in the *Fl. Bathon.* These, Prof. Babington thought later, might have belonged to *L. sylvestris*, and that was possibly the case at Stapleton. Certainly Mr. Flower thought so, but he could never discover the spot; nor could Swete find it. Mr. Thos. Clark, however, was not mistaken when he wrote in the *Phytologist* iv., p. 1136, that the everlasting pea had been established 20 years in a wood on Ivythorn Hill near Glastonbury, as he enclosed a specimen with his letter. The plant grew, he said, in one spot only. At the present time it has been known for some years to Mr. F. Beames in a lane between Cribb's Causeway and Compton Greenfield; and was introduced a short time ago on the top of a cliff at the Sea Walls, Durdham Down.]

**274. *L. palustris* L.** *Marsh Vetchling.*

Native; only on wet peat of the turf moors on the southern border of our district; and quite local there. A characteristic peat-bog plant. June and July.

**S.** Burtle Turf-moor; *J. C. Collins, MSS.* in *New B. G. Suppl.* (1837). This appears to be the earliest notice of the plant in Somerset, if we disregard that in *Fl. Bathon.* "Near Burtle, on both sides of the railway and on the eastern

side of Catcott Drove; also on the northern side of the river Brue, 1856"; *Thos. Clark*. In moist hedges about Smallcombe Wood; *Dr. Davis* in *Fl. Bathon*. "Either a mistake or now lost;" *Jenyns*.

I have found this in several spots south of the railway between Edington and Shapwick Drovers; chiefly in bushy places a little raised above the moor level but still thoroughly wet. It seems to be in the best order about the middle of July, for at the end of the month many pods will be nearly ripe. I have noticed on my visits to the moors that a large proportion of the plants show no sign of flowering—a peculiarity that is, I believe, habitual.

Near Edington a remarkably broad-leaved form of this species occurs, which seems to bear the same relation to the typical plant that *VAR. latifolia* of *Vicia bithynica* does to the *VAR. angustifolia* of that vetch. While leaflets in the type are linear-elliptical mucronate, varying in width from  $\frac{1}{8}$  to  $\frac{3}{8}$  inch; those of the broad-leaved form have a much blunter outline and are fully  $\frac{1}{2}$  inch wide.—*D. Fry*.

[*L. annuus* *L.* and *L. cicera* *L.* are Mediterranean vetchlings that have been observed on city rubbish, or on corn-mill refuse near the Docks. There has occurred also, several times, a species with reddish flowers, nearly related to *L. annuus*, which I cannot name.]

**275. *L. montanus* Bernh.** *L. macrorrhizus* Wimm. *Orobis tuberosus* *L.*  
*Tuberous Bitter Vetch.*

Native; in open woods, bushy and hilly ground; common. May to August.

**G.** Clifton and Durdham Downs, on bushy slopes overlooking the Avon. Cook's Folly Wood. On banks about Sea Mills; Shirehampton; and Combe Down, Westbury. Rough pastures north of Shortwood, and between Stoke Gifford and Northwoods. By the Bradley Brook between Hambrook and Winterbourne, with unusually broad leaflets. Rodway Hill. Ivory Hill. Yate Common. Thornbury. Wyck Rocks. About the woodland at Inglestone and near Wickwar.

**S.** Outskirts of Leigh Woods. Dundry; *Miss Roper*. Barrow Gurney; and in heathy pastures on the high ground towards Backwell and Brockley Combe. Tickenham Hill. Cadbury Camp. Portishead Woods, in many spots. Very abundant on slopes and hedgebanks about Pensford, Stanton Drew and Norton Hautville. Borders of woods near Yatton and Congresbury. On many Mendip slopes and pastures, above both the Cheddar and Wrington valleys. Clutton; Temple Cloud; Compton Martin and the Harptrees. Several localities in the south-east are given in *Fl. Som.*

**VAR. tenuifolius Roth.**

Is well marked in the "Green Valley," Clifton Down; on a wooded slope towards the Sea Wall; and in Cook's Folly Wood. Noted on Clifton Down by Flower in 1850; so it must be permanent, although only an extreme form of a series graduating into the type.

## ORNITHOPUS Linn.

**276. *O. perpusillus* L.** *Bird's Foot.*

Native; on dry banks and bare spots where the soil is thin over rock; rather rare. Almost, or perhaps entirely, confined to the millstone grit and pennant



sandstone formations of our area; and thus curiously scarce and local about Bristol when contrasted with the abundance possessed by some other parts of the country. May to July.

**G.** Brandon Hill. This locality is given in a list of plants published in *Shiercliff's Bristol and Hotwells Guide* for 1789; in *Withering*, 1796; and in *Swete's Flora*, 1854. There are also specimens in the herbaria of Messrs. Cundall, Flower and Stephens. Flower reported it as plentiful in 1841. The plant still exists in very small quantity. I saw four in 1882; two only in 1884; and four again in 1895; while in 1909 there were at least a dozen. Clifton Down, near the Observatory; *Miss M. Atwood* in *Swete*. I did not find this spot for some years, but I now know it to be where millstone grit crops out for a few yards above the Great Fault. Kingsweston; *Dr. Rogers* in *Swete*. Crew's Hole; *G. H. K. Thwaites*. Here, and further up the river-bank at Conham and Hanham, it grows about the exposed upper edges of old pennant quarries. Glen Frome, near Fishponds. Plentiful in some seasons on the bank at Mangotsfield Junction, and on Rodway Hill above. Frenchay Common; *H. J. Wadlow*. On a small broom-covered common near Leap Bridge between Mangotsfield and Mooredend. (Latterly the broom has all been cut down.) Wotton-under-Edge; *V. R. Perkins*. Dursley; *W. E. Loxton*.

**S.** Brislington; *H. O. Stephens* in *Swete*. Between Brislington and Keynsham, on rough pennant ground—"Park Lodge," etc.; noted there by T. Clark in 1826; by Dr. Davis in *Fl. Bathon*, 1834; and by T. B. Flower in 1854. Rediscovered by D. Fry in 1886, and still continues in abundance. On pennant near Naish House, Wraxall; *D. Fry*. Court Hill, and Strawberry Hill, Clevedon; *W. E. Green* and *D. Fry*. Uphill; seen only once.

[**O. compressus** L.

Alien. Of casual occurrence on a waste-heap near Twerton, 1897; *S. T. Dunn*. And at St. Philip's Marsh, Bristol, 1902-4.]

[**O. sativus** Brotero.

Alien. On a railway bank near Brenty! July, 1909; *Miss Roper*.]

## HIPPOCREPIS Linn.

### 277. *H. comosa* L. Horseshoe Vetch.

Native; in dry rocky places, chiefly on oolite and limestone; locally plentiful. May to August.

**G.** Ledges of St. Vincent's Rocks; unquarried spots along the Downs near the Gorge; in the Gully; and on rocks underneath by the railway in diminishing quantity. Wyck Rocks in plenty; noted thence by *Swayne* in *Withering*. Open hillsides above Wotton-under-Edge and Dursley. Stinchcombe Hill.

**S.** On the ridge above Weston-in-Gordano. Worle Hill, both near the village and above the encampment at the Birnbeck end, Weston-super-Mare. Uphill; *Mrs. Gregory*. Very plentiful on the southern face of Brean Down. Cliffs and slopes of Mendip at Ebbor, Cheddar, Axbridge etc. Noted at 850 ft. above Draycott; *Rev. E. S. Marshall*. Dulcote Hill, Wells; *Miss Livett*. Frequent along the edge of Lansdown. Hillsides at Fortnight, Combe Hay and South

Stoke. Hampton Down. On many parts of the hills around Bath; *Fl. Bathon.*  
Wellow. Barrow Hill near Buckland Dinham. Great Elm.

### ONOBRYCHIS *Mill.*

#### 278. *O. viciæfolia* Scop. *Sainfoin. Cock's-head.*

Very doubtfully native near Bristol. Occurs usually on railways and as a survivor from cultivation. Rather common. June and July.

**G.** Westbury-on-Trym. Kingsweston. Sea Mills. Ashley Hill. Brentry. Railway bank by Henbury. Stoke Gifford. Winterbourne Down. Earthcott. Wotton-under-Edge.

**S.** Failand; *J. Foster* in *Swete*. Tickenham Hill. In several spots near Clevedon. Hutton. Loxton. Sandford Hill. Brockley. Congresbury. Railway banks near Keynsham, Saltford and Newton St. Loe. In the tulip-fields near Combe Hay. Not very common; *Fl. Bathon.*

## ROSACEÆ.

### PRUNUS *Linn.*

#### 279. *P. spinosa* L. *Blackthorn. Sloe.*

Native; in hedges and thickets; very common. March and April.

With regard to the separation of species or varieties, this with the two next items forms a troublesome group of closely related plants. Many sloe-bushes appear under a puzzling aspect, with characters linking them to the bullace. We have a number of these which, although not satisfactory *insititia*, diverge towards it from *spinosa* in varying degree. The *var. fruticans*—taller and larger in all its parts, with leaves pubescent on the veins beneath, and erect globose fruit half as big again as that of the sloe—seems to be a good intermediate between it and the bullace. It has been identified on Clifton Down; at Filton; on Lansdown; and at Barrow Gurney; but I find it difficult to determine. I think it must be fairly frequent in North Somerset, for sloes brought in for sale by country folk are sometimes mixed with a good proportion of the larger fruits.

The majority of our blackthorns, as in other districts, are barren in most seasons. I have the impression that they are more fertile in the neighbourhood of the sea than inland.

“On the tops of entangled blackthorn bushes near the Green Beach, over which the winds and storms have carried the salt spray, flowers never fail; and the round fruit, covered with beautiful bloom, is in some years abundant.”—*Wild Flowers of Clevedon*, by A. E. L. (1877).



**280. *P. insititia* L.** *Bullace.*

Native; as the last in hedges and wood borders. Rather rare.

April and May.

**G.** Ashley Hill, in a hedge; *Herb. Stephens.* Lane in the Golden Valley, Bitton. Thickets at Over, 1864; *Herb. St. Brody.* Green lane, Northwoods near Winterbourne. New Passage; *Miss Roper.* The Lower Woods, Wickwar, 1911!

**S.** St. Anne's Wood, Brislington; *G. H. K. Thwaites* in *Swete*; and *Herb. Stephens.* Bishopsworth and Kewstoke; *Rev. W. H. Painter.* Portishead. Yatton; *Miss Winter.* Clevedon; *W. E. Green.* Bleadon; *E. S. Marshall.* Near Cheddar, and at Highbridge; *Fl. Som.* Frequent near Burnham, and many trees on Brent Knoll; *D. Fry.* Wells; *Miss Livett.* Kelston, 1884; *J. G. Baker.* Common in hedges and thickets; *Fl. Bathon.*

Turner remarks on the abundance of bullace trees in Somersetshire—"I never saw in all my lyfe more plenty"—and continues:—"It groweth in hedges, but it never groweth into ye bygnes of a grete tre; but abideth betwene ye bygnes of a tre and a grete bushe"—*Herball*, ii. p. 104 (1562).

**281. *P. domestica* L.** *Wild Plum.*

In hedges and thickets, rare and a doubtful native; but may possibly be wild in the three stations here given. Other localities for single trees or bushes have been disregarded, as these probably are always of garden origin—descended from cultivated plums. *P. domestica* is very seldom met with at a distance from houses.

April and May.

**S.** Portishead. Many trees—some of large size—grow along the low cliff on the coast between Woodhill Bay and the Black Nore, while others form a loose hedge at the Nore. The Rev. Augustin Ley saw these in 1905. He thought they might indeed be native, for it would be difficult to suppose that they had been introduced in so great a number. Several trees, producing fine fruit, have been shown to me by Mr. David Fry in some ancient hedgerows on Ashton Hill, near Corston. The trees are very old, and the ground is rough pasture on Lias, high above the village. In a remote part of the Burnham marsh-lands near Middle Burnham, at a distance from cultivation, there are a number of trees. Fruit from these was forwarded to Mr. J. G. Baker who thought it intermediate between that of *insititia* and *domestica*; *D. Fry.*

Mr. Fry remarks that if the generally accepted opinion, that wild plum-trees, wherever found, are nothing more than outcasts sprung from the thrown-out stones of garden fruit, be correct, one would expect that as the characters of cultivated plums differ quite widely, so those of the outcast progeny would vary likewise. It is hardly credible that the latter would always prove to be of one variety, and run down exactly to the *P. domestica* of our boots. The trees at our three described stations appear to correspond closely in all respects. They grow with as much semblance of being wild as the hawthorns and maples with which they are associated. My friend and I consider, therefore, they may be justly regarded as satisfactory examples of native *P. domestica*; and we doubt if anything better in that direction is likely to be met with.

**[P. Padus L. Bird-Cherry.**

In woods, very sparingly distributed and having but little claim to be considered wild. Probably planted in most instances. Prob- May.

**G.** Stapleton; *A. Leipner*. Bitton Parish; *Canon Ellacombe*.

**S.** Leigh Woods; *Stephens Cat.* (1835). Swete verified this with an asterisk in *Fl. Brist.* St. Anne's Wood, Brislington; *T. B. Flower* in *Phytol.* I., p. 68 (1841). Brockley Combe; *Mrs. Lainsan*. On Walton Castle Hill, Clevedon, by a woodland path that leads to the old *Cyperus* ground. Bird-Cherries are not common in Clifton shrubberies. The beautiful tree at Tellisford House, Clifton Down, is probably the finest in the neighbourhood.]

**282. P. Avium L. Wild Cherry.**

Native; in woods and hedgerows; rather common. More frequent than the localities here given would indicate. April and May.

**G.** Wood between Stoke Bishop and Sea Mills, very plentiful. Woodland on the ridge between Westbury and Henbury. Almondsbury and Tockington. Northwoods, west of Winterbourne. Westridge Wood and others between Wotton-under-Edge and Dursley.

**S.** Leigh Woods, abundant; some fine old trees overlook the Avon opposite Sea Mills. St. Anne's Wood, Brislington; where there are trees near the river from 50 to 60 feet in height. Failand, along a lane leading out of the upper Clevedon Road; and there are some conspicuous trees on a slope above the Tan-pits. Limeridge Wood above Tickenham. Portbury. Walton and Weston-in-Gordano. Some fine trees in Lord's Wood, Houndstreet; *D. Fry*. In some of the old Mendip hedgerows under Shipham a profusion of wild cherries were ripened in the hot June of 1908, for the enjoyment of pigeons and many other birds. Wood border at Combe Hay; *T. F. Inman*. Hampton Woods; *Suppl. Fl. Bathon*.

Earliest British record:—"Cerasus sylvestris . . . In a wood by Bathe." *Johnson, Merc. Bot.* p. 28 (1634).

A curious report reached me during the last week of 1900—that the cherry trees in Stoke Bishop Wood were in flower! Up to that date there had been no frost. It turned out that the deceptive appearance of silvery Clematis fruit trailing among the branches had deluded some superficial observer.

The Dwarf Cherry (*P. Cerasus* L.) does not occur in the district. It is a bushy shrub 3 to 8 feet high only, with suckers.

**SPIRÆA Linn.****283. S. Ulmaria L. Meadow-sweet.**

Native; in damp meadows and by water; very common. June to August.

**VAR. denudata Boenn.**

**G.** By a field path between Stoke Gifford and Hambrook! 1909; *F. Samson*. Ditchbank in Avonmouth marshes! 1910; *Miss Lucas*.

**S.** Bank of the Dundas Aqueduct on the Wilts boundary! 1910; *Miss Roper*. Walton-in-Gordano, 1911; *F. Samson*.

This variety had been repeatedly looked for in previous years but could not be met with; nor does it appear in the *Flora of Somerset*. Such scarcity in so



large an area is remarkable, for I am told that it is to be found whenever wanted in the counties around the upper waters of the Severn.

Some botanists speak of this as a healthy variation, stable in cultivation. By others it is described as a weak, unhealthy form, with a small amount of bloom which is often diseased and so ripens but little fruit. The latest pronouncement on the point is by Mr. A. R. Horwood (*Journ. Bot.* Jan. 1911), who writes:—"when one finds that *one and the same plant* is made up of typical *Spiræa Ulmaria*, the so-called variety *denudata*, and a leaf of an intermediate type, it is reasonable to say that *denudata* has no title to rank as a variety, and to assume that it is merely a state, unstable in the same specimen . . . and due to pathological causes." One would think that the question might be readily settled by those who have plenty of material at hand.

#### 284. *S. Filipendula* L. *Common Dropwort.*

Native; in dry pastures and bushy places on limestone hills. Locally plentiful. May to July.

**G.** Clifton and Durdham Downs; formerly abundant, but now more or less confined to the untrampled portions. "Upon the Rocks about the May-pole"; June, 1773; *Banks* and *Lightfoot*. By the railway under the Downs. Kingswood Hill! *Dr. A. C. Hassé*. I saw the specimen in 1880, but the spot at Kingswood whence it came is unknown to me.

**S.** On the limestone ridge that skirts the coast S.W. from Portishead, especially plentiful above Weston-in-Gordano and extending to Walton. Church Hill, Clevedon, 1904; *Miss Livett*. St. Thomas' Head, Woodspring. In profusion in some hill pastures above Kewstoke and Worle. Banwell Hill. Loxton. Abundant on slopes of Mendip between Cheddar and Axbridge; and in less quantity between Cheddar and Draycott. Sandford Hill. Slope on the eastern face of Wavering Down, overlooking the hamlet of Cross. Crook's Peak; *C. Bucknall*. Brean Down; *Melville* in *Fl. Som.* Lansdown; *Simms* in *Fl. Bathon*; and *W. M. Rogers* in *Fl. Som.*

Earliest local records:—"Oenanthe flos vineus aut vinaceus . . . in Anglia, ubi libentur utimur, non procul Bristoia ad Vincentii rupes et cautes devexas, . . . præsertim ad Pagum Clepton prope Bristoia."—*Lobel. Adv.* p. 325 (1570).

"Is common in many places of this Land, as well as upon and about St. Vincents rocke by Bristow."—*Parkinson, Theatr.* p. 434 (1640).

### POTERIUM Linn.

#### 285. *P. Sanguisorba* L. *Lesser Burnet.*

Native; in dry and hilly pastures; very common. June to August.

#### 286. *P. polygamum* W. & K. *P. muricatum* Spach. *Muricated Salad Burnet.*

Alien or colonist; rather rare. Formerly cultivated as a fodder plant; but is now found chiefly as an accidental and ephemeral introduction with sown

crops. It becomes naturalized, however, where undisturbed, and lasts on in suitable ground. June and July.

**G.** Abundant for many years on a bank of the Port and Pier Railway between Sea Mills and Shirehampton, until the line fell under new management and was periodically tidied up in the fashion so repugnant to the botanist. The plant, though diminished in quantity, is still there. First recorded thence Aug. 1, 1868, by the *Rev. W. W. Spicer*. On embankments of the South Wales Railway near the Boiling Well; and of the new line from Avonmouth to Filton. Old rough pasture near Northwoods, Winterbourne. Abundant in a field of Sainfoin east of Filton, 1906.

**S.** Neglected pasture, Walton-in-Gordano, 1887; *D. Fry*. Clevedon, 1895; *S. T. Dunn*. Combe Down; *Herb. Flower*.

### AGRIMONIA Linn.

#### 287. *A. Eupatoria* L. *Agrimony*.

Native; on grassy roadsides, hedgebanks and rough pasture land. Very common. June to October.

### ALCHEMILLA Linn.

#### 288. *A. vulgaris* L. *Lady's Mantle*.

Native; in peaty and hilly pastures, frequent. June to October.

**G.** Damp spots in fields near Charlton, Patchway and Stoke Gifford. In the Trym valley below Westbury, a small quantity; *Miss Jacques*. Coalpit Heath; abundant outside the wood in which *Corydalis solida* grows. Abundant in pastures about Wickwar; *F. Samson*. Near Wotton-under-Edge; *D. Fry*. Dursley; *Miss Raymond Gingell*.

**S.** Leigh Wood, a very small patch, not far from the Suspension Bridge; now enclosed. Slopes of Failand Hill; *D. Fry*. Markham Bottom. Field at Easton-in-Gordano; *Miss Roper*. Marshy field near Portbury Church; *Miss Lucas*. Lower side of a wood between Portbury and Clapton; *C. Wall*. In meadows between Barrow Gurney and Flax Bourton; and in others nearer Nailsea. On a bank and in pasture near the signal-box at Flax Bourton Station. Peaty ground under Dundry Hill near Bishopsworth, and towards the Water Co.'s reservoirs. Pasture on Yew Tree Farm, Cleeve. Near Hallatrow Station, and in moist meadows between there and Hinton Blewett. Halloway Marsh near Temple Cloud, Litton, Chewton Mendip etc., abundant. Barrow Hill, Clutton. Plentiful on Stantonbury Hill; *D. Fry*. Peaty fields in the Max valley near Winscombe. Blagdon, Compton Martin and the Harptrees. Damp border of wood in the upper part of the Cheddar Gorge; and in many other spots on the Mendip Hills. Mells Park, and meadows near Gurney Slade and Crosecombe; *Miss Roper*. Whatley; *Rev. S. Laing*. Wells; *Miss Livett*. Ashwick, Binegar and Asham Woods; *Fl. Som.* Lansdown; *A. E. Burr*. Combe Down, Combe Hay, Dunkerton etc.; *Fl. Bathon*.

The plants from Stantonbury Hill, and those at Cheddar, Charterhouse and



Compton Martin, belong to the var. *filicaulis* Buser (stem and leaves silky, and inflorescence clothed with long hairs). It is, in fact, doubtful if any of our *A. vulgaris* be typical *A. pratensis* Schmidt.

**289. *A. arvensis* Scop. Parsley Piert.**

Native; on rocky ground, and also in cultivated fields, very common.

June to August.

Abundant on the Observatory Hill, Brandon Hill, and Clifton and Durdham Downs, wherever the soil is thin about exposed rock; but the growth is very tiny compared with that on arable land.

Earliest British record:—"Percepier Anglorum . . . At Angliæ tamen Bristoiæ, arbitramur, frequentissimo apud mulierculas usu receptū est."—*Lobel. Advers. p. 324* (1570).

**POTENTILLA Linn.**

**290. *P. Anserina* L. Silver Weed.**

Native; in damp waste places, poor pastures, and by roadsides, very common and evenly distributed.

June to August.

[*P. recta* L.

Alien. One of the larger species, and rather handsome. Not infrequent as a garden escape; *S. T. Dunn*.

**S.** On the steep rock-face of Hangstone Hill, Clevedon, 1904; but it did not last long. And for some years on an old wall at Wells that has long been demolished; *Miss Livett*. Portishead Station sidings, July, 1903-4-5. On a large refuse heap by the Avon between Keynsham and Bitton, July, 1907! *F. Samson*. By Batheaston Brook; a big patch, August, 1910! *Mrs. Dent Young*.]

**291. *P. argentea* L. Hoary Cinquefoil.**

Native; in the dry short turf of some rocky ridges, very rare.

June to September.

**G.** In one spot near Downend, 1881; *Dr. Hassé*. It was not until June, 1898 that I discovered what is probably the station reported to me by the late Dr. Hassé. A few fine plants grow on about a sq. yard of sandstone rock at a spot that need not be more closely described. In 1900 Miss Roper discovered a new locality about a quarter of a mile from the station just mentioned, in the thin turf of a low sandstone ridge. I saw there in 1906 two patches a few feet apart, with about a dozen small plants in one and half as many in the other. Abundant on some low hills—an elevation of trap rock known as "The Rockies"—between Woodford Bridge and Falfield. I consider this to be certainly indigenous at the above localities.

**S.** Casual near Englishcombe; *Miss Roper*. No native station for the plant is known in the whole county. In *Topogr. Bot.*, North Somerset is credited with it on the authority of "*Collins MS.*"; and in the *New B. G.* we have "Somerset; *Gapper cat.*"; but Mr. Murray states in *Fl. Som.* that he had never seen a Somerset specimen.

**292. *P. verna* L. Spring Cinquefoil.**

Native; on carboniferous limestone rock. Very local. Its localities form the

links of a geographical chain connecting the limestone outcrops of the district.

April and May; but a few flowers are often produced in late Autumn.

**G.** St. Vincent's Rocks, and Clifton and Durdham Downs along the verge of the Avon Gorge. "Plentifully near the May-pole at Clifton," 1773; *Lightfoot*. On Penpole Point, confined to rather a small area. Wyck Rocks; *Swayne* in *Withering* (1796). Still there in plenty.

**S.** By the riverside path under Leigh Woods; and on Leigh Down near the head of Nightingale Valley. Failand, by a limekiln and along a roadside beyond the golf links. In several spots on both sides of the road about half way down Belmont Hill! *Misses Cundall*. A bank in Tyntesfield Park is beautifully covered with it; *C. Bucknall*. High open ground in Charlton Woods above Portbury. Thinly scattered for some distance on rocks in Bourton Combe; much nibbled by rabbits. Backwell Down. Barrow Hill. Limestone outcrop near the top of West Hill, Wraxall. Open ground above Limeridge Wood, Tickenham; *D. Fry*. Crook's Peak, over Compton Bishop; *H. S. Thompson*. Between Loxton and Bleadon; *E. S. Marshall*. Hillsides on Mendip between Cheddar and Axbridge, and high rocks of the "Perch" between Cheddar and Shipham. Sidcot, on south side of the road under Shuteshelve; and on the flank of Callow between Shuteshelve and Axbridge; *W. F. Miller*. Brean Down! *St. Brody*. Pen Hill, Wells; *Miss M. W. Mayow*.

**293. *P. reptans* L. *Trailing Cinquefoil*.**

Native; on dry banks and waste spots by roadsides, common. All Summer.

**294. *P. silvestris* Neck. *P. Tormentilla* Nestl. *P. erecta* Hampe. *Common Tormentil*.**

Native; on commons, moors, old pastures and open woodland. Common and generally distributed. All Summer.

Remarkable for its large, woody rootstock, containing much astringency and for that reason formerly used in medicine. dentrifices, etc. With double flowers on Blackdown, Mendip.

HYBR: X *procumbens* = *P. suberecta* *Zimmerer*.

**G.** Roadside near Damery Bridge, N.W. of Charfield.

**S.** Walton Moor. Aller Moor. Edington, Shapwick and Ashcot Moors.

Hybrids of this group are peculiarly abundant on the peat moors, where a long series has been observed connecting the species by many intermediate forms. Most of them are likely to be direct or primary hybrids, but I have seen some so nearly approaching one or other of the parents as to suggest a secondary crossing or fertilization of the primary hybrid by the parent so favoured. Still, we know that the characters of simple hybrids often closely approach those of one—usually the female—parent; and so it is not always possible to speak decidedly on the derivation of these interesting specimens.

The *Potentilla* hybrids here recorded have been passed by Mr. Arthur Bennett



and the Rev. E. S. Marshall; botanists who have given special attention to hybrid plants of this and other genera.

**295. *P. procumbens* Sibth. *Creeping Tormentil*.**

Native; in similar situations to those of *P. reptans*. Rare, or overlooked on account of a general resemblance to sister species. Our recorded stations are still inadequate to the probable distribution of the plant in this district. July to September.

**G.** Woods at Wyck, 1884; *J. G. Baker, F.R.S.*

**S.** Leigh Woods! *W. E. Green*. Pasture near Compton Dando; *D. Fry*. Winscombe; *W. B. Waterfall*. Plentiful on Brean Down, 1895; *Mrs. Gregory*. Frequent on Shapwick and Ashcot peat moors.

Formerly regarded as a variety or sub-species of *P. silvestris*; but present-day writers unite in treating it as a distinct species. Some reasons for the latter course are given by Mr. Murray in the *Flora of Somerset*.

HYBR: X *reptans* = *P. mixta* Nolte.

A rare hybrid, only observed hitherto on freshly cut peat near Ashcot Station, N. Somerset. My specimens have short, broad serrate leaflets to the quinate leaves at base of stems; and very cuneate-based ternate and simple leaves which are stalked, with entire stipules.

**[*P. norvegica* L.**

An alien; one of those, however, that we are likely to have always with us. Said to be much cultivated in English gardens; and to be well established and spreading as an escape, difficult to eradicate, in some parts of the country. With us it has rather the appearance of an introduction with foreign produce.

**G.** Watercress Farm, Baptist Mills (fowl run), 1911; *Miss Roper*.

With other aliens by Mangotsfield Station, Sept. 1896! *S. T. Dunn*.

**S.** On the G.W.R. near Keynsham, 1900. A garden weed at Sidcot, 1900; and at Saltford, 1902. Waste ground near Portishead Dock, 1903-7.]

**296. *P. Fragariastrum* Ehrh. *P. sterilis* Garke. *Barren Strawberry*.**

Native; on hedge-banks, old stone walls and wood-borders. Very common. March to May.

Although in general it begins to flower with the month of March, blossoms can be seen much earlier in mild seasons—even in November.

**COMARUM Linn.**

**297. *C. palustre* L. *Marsh Cinquefoil*.**

Native; in swamps and bogs; rare and local. Unknown in Gloucestershire. June to August.

**S.** Specimens from a pond near the keeper's house, Leigh Woods; and from Ashton Manor Woods, gathered by Miss Atwood many years ago, are authenticated by Swete, *Fl. Brist.* p. 27. But none can now be found, for the Leigh Wood pond has long been drained, and the interesting plants it sustained have died out. Neither is there any spot in Ashton Park at the present time at all suitable for the growth of this species. Near Axbridge; *Rutter*. Abundant on the peat moors between Glastonbury and Burtle.

## FRAGARIA Linn.

298. *F. vesca* L. *Wild Strawberry.*

Native ; in woods and thickets and on shady banks. Abundant throughout the district.

Specimens were gathered on Brandon Hill in 1843 (*D. Fry*) ; and others are contained in the Stephens Herbarium. The plant has long since disappeared from that spot.

May to July or later. Many flowers were seen in Charlton Woods, Portbury, in November and December, 1908.

In July, 1906 Mr. F. Beames showed me some wild strawberries which, although ripe, were quite white. They were growing on a bank in the lane between Cribb's Causeway and Compton Greenfield, in a patch about a yard across. There were plenty of red strawberries near at hand, but none mixed with the white-fruited ones. The only mention of this form that I can find in books is in Hooker's *Students' Flora*, where the receptacle of fruit is described as "red or white."

Countless varieties of cultivated strawberries have sprung from the wild plants of Europe and America. The flavour of woodland fruit, it must be admitted, leaves little to be desired in comparison with that of any modern descendant.

Tusser (1570) \* directs his wife, in September, to :—

"Set me a plot

With strawberry roots, the best to be got ;

Such growing abroad, among thorns in the wood,

Well chosen and pricked, prove excellent good."

The name is derived, I believe, from the Anglo-Saxon *streow*, to disperse or spread, referring to the growth of the plant by long runners.

299. *F. moschata* Duchesne. *F. elatior* Ehrh. *Hautboy Strawberry.*

In woods ; rare. Very doubtfully indigenous in Britain. June to August.

**G.** Among bushes by the railway under the Downs. Kingswood, 1880. Apparently native in the woods at Over Court ; *R. C. Cann Lippincott*. The Rev. E. S. Marshall has been on the ground and agrees with the owner of the estate that the plant looks like a wilding at Over. Wood at Dursley, 1868 ; *Herb. St. Brody*.

**S.** Between Yatton and Congresbury ; *D. Fry*. Court Hill, Clevedon ; *Mrs. Lainson*. Wood near Swainswick, June, 1855 ; *L. Jenyns* in *Herb*.

In most cases, doubtless, this is a survival from former cultivation. A century or so ago Bristolians resorted to several public "strawberry gardens" conveniently placed on both banks of the Avon ; from one of which the plant under the Downs may have originated. The Over Court locality is the only one where it appears to occur naturally.

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\* "A Hundrett good Poyntes of Husbandry lately married into a Hundrett Good Poyntes of Huswifery." By Thomas Tusser.



**RUBUS** *Linn.*

If this present enumeration of bramble-forms be compared with that contained in my former work it will be seen that many alterations and additions have been made in the interval—a period during which the *London Catalogue* list of British species, varieties and hybrids has lengthened from a total of 70 to 210 !

One may now say that the brambles of this district have been rather carefully worked out. Their records, here given, depend very generally on observation of the growing plants by the writer, often made in company with Mr. David Fry who closely studied the genus for many years. The greater part of our gatherings has been submitted to expert examination. In former days I was indebted for much kindly help to Mr. Archer Briggs; and latterly the Rev. Augustin Ley and the Rev. W. Moyle Rogers—our most eminent batologists—have always been willing to give a valued opinion. A few of the records in Swete's *Flora* have been adopted where the author states that specimens had been named by Mr. Edwin Lees; and many substantial notes have been taken from Mr. Murray's *Flora of Somerset*. It must not be supposed, however, that this account of Bristol Rubi is considered to be exhaustive or in any sense final. Workers in time to come will doubtless discover more known species within our boundaries; and they will also definitely identify and describe some of the puzzling forms and variations with which we have failed to deal.

It needs, indeed, abundant leisure and enthusiastic diligence to make a botanist familiar with this intricate, but fascinating, genus; as well as that gift of pertinacity which will save him from discouragement, both when his diagnoses prove faulty and when the names he has become accustomed to are discarded or reshuffled, in deference to changed views in high places either at home or abroad.

**300. R. Idæus** *L. Raspberry.*

Native. Rather common in thickets and wood-borders, and on bushy roadsides, preferring a sandy soil; and so well distributed generally that no list of localities is requisite. Although that is so, botanists from the North of England remark upon the apparent scarcity of raspberries about Bristol when compared with the great abundance to be found in the woods and cloughs of Lancashire and Yorks. An example of its home growth lies near at hand on Clifton Down in thickets below the "Promenade." The slope, or "Green Valley" as it is often called, lying north of St. Vincent's Rocks and running down towards the bottom of Bridge Valley Road, shows in the most interesting way the influence of soil upon the occurrence of plants. Whereas our massive limestone, right and left of the valley, hardly yields a bramble-bush other than *R. rusticanus*, there may be found upon this narrow strip of shales, grit and conglomerate over the "Great Fault" about twenty species of Rubi. Some of these re-occur on the sandstone below Sneyd Park; others do not appear again within several miles.

There is a variety of this plant having amber-coloured fruit with pale stems and foliage, which is the White Raspberry of gardens. It is rarely found wild,

but we have it on a wood-border not far from the north end of Beggar's Bush Lane, S. ; and Mr. Thos. Clark noted it in two spots on the peat moor between Shapwick and Ashcot. Dr. Arthur Prichard used to find it on a rocky cutting in the Abbotsleigh road.

The garden raspberries are stated to have resulted from cultivation of the wild plant during several centuries. Turner (1548) says that the raspberry of that time was known in Britain only "in certayne gardines of England." Æ. L.

### 301. *R. fissus* Lindl.

Native. Very rare, being as yet known only in one large wood. June and July.

**S.** Abundant in Lord's Wood, Houndstreet, about two miles from the village of Pensford. First observed by Mr. D. Fry in 1894. Until that time the species was practically unknown in North Somerset or West Gloucester.

Our plants have an aspect remarkably different from that of northern *fissus*, owing to their luxuriant habit, the stems being often six feet or more in height. The leaves also are frequently very large—many of them septennate—with leaflets of a thinner texture than is usual; the terminal one recalling in shape that of *R. suberectus*. The stem-prickles, although numerous, are fewer and less crowded, and have more dilated bases than is typical. Mr. Moyle Rogers wrote respecting this plant—"To Mr. White's very handsome specimens of it in my herbarium I have added '*f. umbrosa*' to the specific name. It goes off from the type towards *R. suberectus* and *R. Rogersii*; though still, I think, in all essential characters, *R. fissus*." It has been pointed out by Mr. Rogers that this species becomes more like *R. suberectus* in damp shady places such as the latter grows in. The fact is illustrated in Lord's Wood, and still more clearly in West Sussex where I have found the two growing together. But the resemblance is in stature and habit; not in any mingling of important features. Mr. Rogers regards our plant as in some respects nearer to the Continental *fissus* than is the ordinary British form of that species. *R. suberectus* is not a Bristol plant.

"Areschoug [a Scandinavian botanist] considers it to be very probable, indeed nearly certain, that *R. fissus* has originated from *R. suberectus*; and that it has arisen under the influence of a prevailing maritime climate, in the west of Europe."—*Fl. Som.*

Concerning this, the next species, and *R. nitidus*, I have observed that they are to be found in good quantity at their respective stations only after the underwood has been cut; and that their development appears to be gradually suppressed by the subsequent growth of the coppice, until little or nothing can be seen of them. When they were first noticed in Lord's Wood the ground there was quite open and exposed to sun and air. Now, fifteen years later, the woodland thicket is so dense and dark that one can hardly make a way through it, and two out of the three brambles mentioned have vanished; only, as I hope and believe, to return when the former conditions have been restored.

### 302. *R. sulcatus* Vest.

Native; in woods, very rare.

June and July.



**S.** On a lower slope of the large wood above Compton Dando on the left bank of the Chew. Discovered there by Mr. D. Fry in 1895. The year following, a single clump was found by the writer in Lord's Wood, Houndstreet, not far from the Pensford path. These two stations are the only ones recorded, so far, in the county. (*Journ. Bot.* 1897, p. 123). And at present there is none for Gloucestershire.

This is a scarce and beautiful bramble; luxuriant in all its parts, and with a handsome panicle of large white flowers.

### 303. *R. plicatus* Wh. & N.

Native; on peaty ground and in bushy places. Very rare.

End of June to August.

**G.** In the Wyck Valley below the Rocks, on the left side of the stream. Only two bushes, but those very fine and characteristic.

**S.** On the Ashcot and Edington peat moors; believed at one time to be abundant. But most of what we had been calling *plicatus* for many years, proved, on further investigation, to be *R. opacus*. Still, Mr. Murray wrote me in 1897 that he had specimens from the peat which he considered right, and which Mr. Moyle Rogers had agreed were "good *plicatus*."

### 304. *R. opacus* Focke.

Native; abundant on the peat moors, but not met with elsewhere.

July and August.

Prior to 1891 this had been confounded with the last species, but it is really the dominant bramble of the Burtle and Glastonbury moors. A handsome plant when well grown, and then much stronger than our *plicatus* ever becomes. Along the bushy edge of the railway line between Shapwick and Ashcot Stations I have gathered panicles that measured 2 ft., while leaves of barren shoots were 9 in. across. The basal leaflets of the latter are distinctly stalked, the panicle has no prickles, and the sepals incline to roundish-oval with short points. The sepals of *plicatus*, on the contrary, are commonly prolonged at the tips into linear points of some length.

Peat moor blackberries are always in request. The excellent crop is largely composed of the fine and well-flavoured fruit of this species.

### 305. *R. nitidus* Wh. & N.

Native; in a single wood. Very rare in the West of England. Ours is the only record for the county of Somerset.

July.

**S.** Lord's Wood, Houndstreet; in considerable quantity at the proper time. See note under *R. fissus*.

Mr. Rogers considers this thoroughly good *nitidus*. It is one of the less prickly forms, with exceptionally hairy leaves and short stamens: differing from the southern type of Hants and Dorset much as our *fissus*, growing in the same wood, does from the usual form of that species.

306. *R. affinis* Wh. & N.

Native. In swampy thickets and hedge-bottoms, and on banks and droves of the peat moors; locally plentiful. July and August.

**G.** Clifton Down; *Miss Atwood in Swete*. Still there in several spots at the lower end of the "Green Valley." Conham; *Swete, Fl.* Stapleton; *Herb. Stephens*.

**S.** Lord's Wood, Houndstreet; and in a hedge between Publow and Houndstreet; *D. Fry in Fl. Som.* p. 418b. Abundant in Max Bog below Winscombe. Plentiful on the peat moors of Aller, Ashcot, Burtle, Edington, Shapwick and Westhay.

Our plant is quite typical, and identical with those from Dorset which Dr. Focke refers to in his *Notes on British Rubi*, pub. in *Journ. Bot.* 1890, as corresponding almost exactly with the German *affinis* that he had seen at Weihe's original stations. The suberect habit is always well marked. In the shade of an alder holt I have seen barren stems standing straight, with even the tips erect, up to eight and even ten feet.

[The "*R. cariensis*" from our southern peat moors, pub. in *Journ. Bot.* 1892, p. 11 and subsequently withdrawn in that *Journal* (1893, p. 115), was a misnomer. The name had been suggested on insufficient material at a time when *cariensis* was very imperfectly known in this country and there were only some Devon specimens to go upon. The plant was ultimately referred to *villicaulis*.]

307. *R. imbricatus* Hort.

Native; on the open ground of commons and wood-borders, forming isolated clumps; very seldom in hedgerows. Restricted almost entirely to the pennant sandstone of West Gloucester, where its stations are upon, or in the immediate neighbourhood of, surviving aboriginal patches of the ancient Forest or Chase of Kingswood. July and August.

**G.** Glen Frome under Stapleton, in many spots on both banks of the river. Lower slopes of Rodway Hill near Mangotsfield. Two or three clumps on the western margin of Siston Common. Roadside north of Winterbourne Down. Bury Camp, and a laneside adjacent. Ivory Hill near Coalpit Heath, abundant; and along the low rubble walls of adjacent lanes. Field fences on the Mill Farm, Frampton Cotterell. Plentiful on the skirt of a wood by the Frome south of Iron Acton. Abundant on Yate Common to the east of the Midland railway and close behind the village, as well as on the west side of the line. In furzy fields and hedgerows north of Yate Station, well distributed. In several places by roadsides near Damery Bridge. Yate Lower Common, between Rangeworthy and Wickwar, abundant.

**S.** A small clump on Broadfield Down, at a corner near the cross road from Brockley to Wrington! Discovered by Mr. C. Bucknall in Sept. 1908. We have no other locality in North Somerset. This bramble is extremely rare in the county as a whole, for but one station is given by Mr. Murray in *Fl. Som.* Mr. Fry and I got it in plenty, however, on Quantock, between Holford and Dodington.

*R. imbricatus* is quite a scarce form, confined to our southern and western counties. It reaches its northern limit in the Wye valley, where it was first



noticed and discriminated by the late Rev. F. J. A. Hort. Mr. Archer Briggs told me that the Bristol plant corresponded precisely with that found by himself near Plymouth. It will be seen that the geographical chain of distribution between these districts, if not broken, has lengthy links across Somerset and Devon whence the records are so few and widely separate.

### 308. *R. carpinifolius* Wh. & N.

Native; very rare.

July and August.

**S.** Downhead Common near Cranmore. Reported on as "typical" by the Rev. W. Moyle Rogers.

This bramble is absent from large tracts of the West Country: namely, a great part of Herefordshire; most of Gloucestershire; and nearly the whole of North Somerset.

On a careful re-examination of the Stapleton and Brislington specimens contained in the Stephens Herbarium, I now think they do not represent the plant of Weihe but are the *carpinifolius* of Bloxam=*umbrosus* Bab.; or, as now determined,=*pulcherrimus* Neum. The Rev. R. P. Murray was of the same opinion.

### 309. *R. Lindleianus* Lees.

Native; in hedges and thickets, and on furzy commons. Frequent.

July and August.

**G.** Abundant on the furzy slopes of the "Green Valley," Clifton Down. Brandon Hill; *Swete, Fl.* Still there at the present time! *D. Fry.* Stapleton; *Thwaites in Swete.* In the Frome valley near Fishponds, Downend, and by Frenchay. Rodway Hill near Mangotsfield. Hanham, sparingly; *D. Fry.* In the Boyd valley below Wyck Rocks. Wyck and Warmley, 1884; *J. G. Baker, F.R.S.* Abundant on Yate Common, both east and west of the railway. By the field-path between Hambrook and Stoke Gifford. Bury Camp and lanes upon the hill. Old quarry-ground near Westerleigh. Field hedges and lanes about Leechpool Farm and Engine Common, north of Yate. Ivory Hill near Coalpit Heath. Hedges between Charfield and Damery Bridge. Milbury Heath! *Miss Roper.* Sea-bank, Oldbury-on-Severn, 1867! *Herb. St. Brody.*

**S.** Leigh Woods; *Herb. Stephens* as "*R. nitidus* Bab. in lit." The typical plant grew until recently on the verge of the wood near the Abbotsleigh road, now enclosed. Brislington and Keynsham; *D. Fry.* At Compton Dando. In a good many spots on the Failand high ground. Slopes of Failand Hill above the Tan-pits; *C. Bucknall.* Hedgerows and rough banks on the Portbury side of Failand Hill. Abundant between Stanton Drew and Knowl Hill; *D. Fry.* Strawberry Hill, and some other spots about Clevedon. Frequent near Hallatrow and Farrington Gurney. Vobster and Downhead. Stoke Lane, Edford! *Fl. Som.* East Harptree! *Miss Roper.* The type is frequent on Mendip. In an old pack-horse lane between Shipham and Tining Farm there is a form with remarkably pyramidal panicles, which I find is known in other districts.

On Clifton Down, where many species congregate so closely, there are several hybrid *Lindleianus* brambles whose other constituents are uncertain.

A small form, from Yate Common, with finer leaf-toothing and broader panicle than usual, and rather exceptionally hairy rachis and pedicels, was placed by Dr. Focke under *R. Sprengelii* Weihe, with the varietal name of *longistamineus* (see *Journ. Bot.* 1893, p. 115). But on seeing a good series of my specimens, forwarded by Mr. Rogers, the German expert agreed with our own that they were "nothing else than *Lindleianus*"; and added:—"The specimen I saw at a former time looked so very near *R. Sprengelii* that I did not compare it with *R. Lindleianus*." Mr. Rogers thought that the variation from type might be due to its growth on an exposed common.

**310. *R. argenteus* Wh. & N. *R. erythrinus* auct. brit. prius.**

Native; on commons, bushy banks and heathy ground; and in open woodland about the pennant quarries; frequent. July and August.

**G.** A few large clumps on Durdham Down, not far from the wicket leading to Sneyd Park. Sandstone bank by the railway under Sneyd Park. A bush or two near the Avon below the Sea Wall. Upper end of the "Arbutus Walk," Henbury; and in field hedges towards Lawrence Weston. Very abundant about old quarries and tracks on the Avon bank near Hanham. Hedges about Lantern Bottom, Cock Road, and Mount Hill, Kingswood; in many places. Oldbury Court Woods! *Miss Roper*. In several spots on Rodway Hill near Mangotsfield. Siston Common. Bury Camp above Moored.

**S.** Sparingly on Leigh Down. Failand Hill. St. Anne's Wood, Brislington. Along the left bank of the Avon between Brislington and Keynsham. Fox's Wood. Quarries and lanes bounding the Asylum grounds. Lane between Woollard and Compton Dando. About Stoke Lane, Edford; *Fl. Som.* Border of Hampton Down, Bath.

A hybrid, probably *X rusticanus*, grows on a slope of Failand above the Tan-pit stream; *C. Bucknall*.

The history of this plant as a British species is in some measure connected with Bristol botany. It may therefore be profitable to give a sketch of that relation, and at the same time to explain the changes of nomenclature which have been found necessary.

Before the year 1880 this bramble had not been differentiated from the other *Rhamnifolii*. At that date Mr. Archer Briggs wrote in the *Flora of Plymouth* that he had noticed a form, common in his district, that might have to be described as a new species should it not be found identical with some named Continental one. About the same time, or a little later, I forwarded to him some Bristol specimens which he recognized as corresponding with the plant in question. In 1889 Dr. W. O. Focke, the European authority on this genus, came over, and during his visit to Southern England saw many examples under Mr. Briggs' guidance. He called them *R. erythrinus* Genev. without question (*Notes on English Rubi* in *Journ. Bot.* 1890, p. 97). Accordingly the year following, with some hesitation certainly, for he detected a want of agreement between the Plymouth bramble and Geneviev's description in the *Essai Monographique sur les Rubus du Bassin de la Loire*, Mr. Briggs described *R. erythrinus* as British in *Journ. Bot.* 1890, pp. 204-6.



As shown by the list of localities, my friends and I found the new bramble to be frequent and abundant about Bristol. Mr. D. Fry, moreover, observed a marked variation near Woollard and at Brislington. To this he drew attention in *Journ. Bot.* 1892, p. 11, and it is kept separate in the *Flora of Somerset*.<sup>\*</sup> This variation agreed more precisely with the German *R. argenteus*, to which indeed it had been already suspected that all our "*erythrinus*" really belonged, although Dr. Focke did not admit that there was any substantial difference between it and the plant of Genevier. Later however (1902-3), the great batologist published a monograph of Central European Rubi, in which he made important alterations in nomenclature and classification that affected many items in our British list. Almost simultaneously a French statement of views on British Rubi was issued by Prof. H. Sudre. In deference to the matured opinion of these botanists *R. erythrinus* Genev. as a British species has been given up; and we now catalogue our plant, with its variations, under *R. argenteus*. It is distressing to have to add that the stability of this last determination is by no means assured.

To my mind this is a most attractive bramble, and easy to recognize. Pretty pink cup-like flowers, loose panicle furnished with plenty of sharpest yellow-tipped prickles and often an oddly placed long branch or two, and leaflets of a peculiarly elegant shape, mark the plant. With two exceptions its characters vary or shade off but little, at least in this district. The exceptions are Mr. Fry's variation already alluded to, and another from Rodway Hill. The latter is stronger, with stouter prickles, a very leafy panicle and broader, blunter leaflets. It is a handsome plant, met with also, as Mr. Rogers informs me, in Surrey and Kent.

The specimens labelled *erythrinus* (those from Bailey Gate excepted) in the *Set of British Rubi*, No. 108, were gathered at Bristol by the writer. And those labelled var. *argenteus*, No. 58, were supplied by Mr. David Fry from Brislington and Woollard.

### 311. *R. rhamnifolius* Wh. & N. *R. cordifolius* Blox. Bab., etc.

Native; in similar situations to those of *R. Lindleianus*, with which it often grows, as on Clifton Down and Yate Common. July and August.

**G.** Upper part of the "Green Valley," Clifton Down, abundant. In plenty by the railways under Sneyd Park. Glen Frome near Stapleton. Both banks of the Frome at Downend, Frenchay and Moored. Bury Camp; *C. Bucknall*. Avonside quarries and wood borders between Conham and Hanham Ferry. Abundant in the Boyd valley below Wyck. Sparingly by Warmley; *D. Fry*. Ivory Hill near Frampton Cotterell. About Northwoods, Winterbourne and Watley's End. Yate Common. Wickwar.

**S.** Beggar's Bush Lane, near the golf links. St. Anne's Park, Brislington; and along the G.W.R. between Brislington and Keynsham Hams. Lanes on the Failand plateau, and in several places between Longwood House and Long

<sup>\*</sup> In his *Addenda*, however, Mr. Murray gives a later opinion—that the variation differs too little to justify separation.

Ashton. Ursleigh Hill near Pensford. Between Stanton Drew and Knowl Hill; *D. Fry*. Compton Dando. Chelvey Batch. On the Congresbury side of Kings Wood, and on the skirt of Col. Long's woods. Banwell Hill. Clevedon; *D. Fry*. Stoke Lane near Edford. Chewton Mendip! *R. V. Sherring*. Old lanes about Shipham and Sidcot. Vobster. Downhead Common. Brean Down.

A hybrid X *Lindleianus* occurs on Clifton Down (*Journ. Bot.* 1897, p. 124).

**[*R. nemoralis* P. J. Mueller.**

The place occupied by this species in *Fl. Som.* depends on a peat moor plant observed by Mr. D. Fry and myself many years ago; and which, as Mr. Murray remarks, has been the subject of much discussion. In 1892, with some doubt, Dr. Focke named it *nemoralis*; and the Rev. A. Ley thought it answered to his variety (*Silurum*) of that species. Three years later the Rev. W. M. Rogers considered it rather a *villicaulis* form (*insularis* of Areschoug), and that has now, in his *Handbook*, been combined with type *villicaulis*. The peat moor bramble, therefore, rests under the latter name, and *nemoralis* has no representation in our district.]

**312. *R. dumnoniensis* Bab.**

Native; on an open common and in thickets, on sandstone and trap. Very rare. July and August.

**G.** Abundant on Yate Common. Old green lane on Leechpool Farm, N. of Yate; typical.

Recognized as certainly this by the Rev. W. M. Rogers during an excursion with Mr. D. Fry and myself in 1893. I had gathered the plant in 1882; and, not being able to identify it, had asked the opinion of Mr. Briggs. He named it *R. Salteri* var. *calvatus* Bloxam, and as such it appeared in my former work on the Bristol Flora. *R. dumnoniensis* was not described by Prof. Babington until 1890. The species is peculiar to Great Britain.

**313. *R. pulcherrimus* Neuman. *R. macrophyllus* var. *umbrosus* auct. brit. *R. carpinifolius* Bloxam, non Wh. & N.**

On commons, roadside wastes and open woodland, well distributed.

July and August.

**G** Clifton Down. Bushes near the top of the "Green Valley" were pointed out to me by the late Rev. W. H. Purchas as being exactly Bloxam's *carpinifolius*. Mr Purchas very kindly sent me specimens from a bush named by Bloxam himself, and these were identical with our plant. On both banks of the river in Glen Frome by Stapleton and Fishponds. Oldbury Park, and about the Frenchay quarries. Downend. Yate Common, where it is the prevailing bramble of this group, and sometimes bears septennate leaves. Sodbury Common. Inglestone Common.

**S.** St. Anne's, Brislington. Hedgerows at Queen Charlton. Lord's Wood, Houndstreet, with septennate leaves. Compton Dando. Bishopsworth. Plentiful in Bourton Combe. Furzy ground under Backwell Hill. Wraxall. Abundant about Clevedon: with septennate leaves on Walton Castle Hill. On the hill at Weston-super-Mare. Downside Common, and wood-borders at Stoke Lane. Eaker Hill Wood, Chewton Mendip! *Miss Roper*. Downhead Common, Shepton Mallet and Wells; *Fl. Som.* On the southern peat moors.



**314. *R. mercicus* subsp. *bracteatus* Bagnall.**

Native; on a furzy hillside; at present known in only one spot.

July and August.

**G.** Rodway Hill near Mangotsfield, not plentiful. Discovered in 1905.

Mr. Rogers' comment on this was:—"So entirely *bracteatus*-like in panicle that there seems no sufficient ground for seeking another name, in spite of untypical leaves. If right, this is a record for West Gloucester." Mr. Bagnall wrote:—"The specimens agree truly with my Warwickshire plants in every particular but one, *viz.* the leaves are more white-felted on the under side; still I think that is a mere matter of locality. I believe them to be as you have named them. They are more beautiful than my plants originally so named, the district in which they grew being a smoky one from the presence of collieries and smelting works, while yours are so fresh and clean that it is a pleasure to see them. Your plant is more characteristic than some others I have received."

It is possible, I think, that *bracteatus* might be better classed as a separate species than as a "sub-species" under *mercicus*.

**315. *R. villicaulis* Koehl. (aggr.)**

Native; on banks, commons and the peat moors; rare and local.

July and August.

**G.** Glen Frome, Stapleton; a few scattered bushes. On Bury Hill near Moored; *C. Bucknall*.

**S.** Limekiln, Wookey Hole; and hillside above Ebbor Rocks; *J. G. Baker, F.R.S.* Frequent on Cranmore Hill and Downhead Common. Plentiful in bushy places by the railway between Shapwick and Ashcot Stations; and in some other spots on the peat moors. (See *R. nemoralis*.) The Strawberry Hill (Clevedon) and Norton's Wood plants have proved to be *R. pyramidalis* Kalt.

As Mr. Murray very truly says, few British plants have been more misunderstood than this. Much of the old "*villicaulis*" has now been transferred to other species. For that reason the author of the *Flora of Somerset* found it necessary to make several readjustments whilst his work was passing through the press; and I anticipate that rearrangement will be needed here also sooner or later. There are probably plants in the district that will be assigned to *var. calvatus* Blox. and to *R. Selmeri* Lindeb.

**316. *R. rhombifolius* Weihe.**

Native; in a bushy place; very rare.

July and August.

**S.** Sparingly on Downhead Common! *D. Fry*.

**317. *R. gratus* Focke, var. *sciaphilus* Lange.**

Native; on a wood-border; very rare.

July and August.

**G.** Kingsweston Down; *Rev. Augustin Ley*, fide *Rev. W. Moyle Rogers*.

**318. *R. thyrsoides* Wimm.**

Native; in hedges; very rare.

July and August.

**S.** Hedges at Kenn! and a hedge in Walton-by-Clevedon, beyond Ladye Bay, 1881! *W. E. Green*. Near Congresbury, 1883; *T. R. A. Briggs* and *D. Fry*.

We have no more recent record. Mr. Green's gatherings were named by Mr. Archer Briggs, who himself pointed out the species at Congresbury. It has its place here therefore in deference to his opinion, and as he had gathered plants at Plymouth which Dr. Focke pronounced to be "really" the German *thyrsoides* it must be admitted that his judgment should not be lightly questioned. Mr. Green's localities have been searched for but cannot be refound; consequently I do not possess representative specimens of the Clevedon plant. It is highly probable that other stations in our district remain to be discovered.

### 319. *R. Godroni* *Lecoq & Lamotte*.

Native; in open woodland; very rare.

July and August.

**S.** Lord's Wood, Houndstreet; on the edge of a drive by the Pensford path. Recorded in *Journ. Bot.* 1901, p. 91, as *R. argentatus* P. J. Muell., a name subsequently abandoned by our authorities in deference to the views of M. Boulay and Dr. Focke. Between Wells and Wookey; *C. Bailey* (fide *Focke*), in *Fl. Som.* Mr. Fry knew nothing of the Brislington locality credited to him by Mr. Murray on the same page.

VAR. **robustus** P. J. Muell.

**G.** By the Yate road near Winterbourne Down! *C. Bucknall*. In the trap quarry near Damery Bridge (typical); and in hedgerows between that place and Charfield. Of the latter Mr. Rogers wrote that some specimens represented a small form of this variety, while others shaded off towards var. *clivicola*. It seems that these varieties are very nearly allied to *R. pubescens*, and are often hardly separable.

### 320. *R. rusticanus* *Merc.*

Native; in hedges, thickets and open ground generally. Very common and abundant throughout the district.

July to October.

This is the prevailing plant of our limestone downs and hillsides, on the calcareous soil where few other brambles care to grow; it thrives well, however, in the low country. On the higher uplands of Mendip it gives place largely to *R. cæsius*. Quite the latest of the genus in flower and fruit. The berries are often dry and of poor flavour; yet in field hedges of the lowlands this species will bear a heavy crop of fine sweet fruit in a favourable autumn. I remember going a-blackberrying with three children to Pilning on a September afternoon, when over thirty pounds were gathered entirely from *R. rusticanus*.

Variations in outline and tooting of the leaflets and in amount and texture of the white felt on their undersides are not infrequent; and there are many hybrids.

### HYBR. **X pyramidalis**.

Abundant over nearly an acre of ground on Ivory Hill near Frampton Cotterell, West Gloucester; on sandstone. Absolutely sterile. *R. pyramidalis*



grows close by. Ivory Hill is one of the few morsels of the Saxon Royal Forest of Kingswood that remain in a primitive state. There has therefore been plenty of time for a strong hybrid like this to spread over a large area by merely rooting at the tip.

Judging from a specimen under Wirtgen's label (*Plantæ crit. etc. flor. rhen.*) this hybrid matches *R. sericophyllus* Muell. & Wirtg. = *R. discolor* VAR. *velutinus* Wtg. *Herb. Rubor. No. 38.*

#### HYBR. X *leucostachys*.

**G.** Bushy pasture in Lantern Bottom, Kingswood Hill. In the Wyck Valley, below the Rocks.

**S.** Leigh Wood, near the Water Co.'s reservoir; *Journ. Bot.* 1892, p. 11; and 1897, p. 124. The spot is now enclosed.

#### HYBR. X *corylifolius*.

**G.** Near Wyck Rocks; a small patch by woodland on the right bank of the Boyd.

**S.** On the border of King's Wood between Yatton and Congresbury; *D. Fry*, fide *W. M. Rogers*.

#### HYBR. X *cæsius*.

**S.** Abundant for a long distance on both sides of a lane near Keynsham; *D. Fry*.

#### VAR. or forma *leucocarpus*.

An amber-fruited Blackberry.

**G.** By an old quarrying in the Frome valley near Downend. Discovered there by Mr. F. F. Tuckett, who directed Mr. Fry and me to the spot in 1887. The bushes have since been destroyed by enclosure and building.

**S.** In an old hedge at the foot of the Mendips near the hamlet of, Cross, west of Axbridge. Shown to me in 1882 by Mr. E. H. Read, who had then known the bushes nearly thirty years. See *Journ. Bot.* 1882, p. 346. Sparingly in some rough ground about a mile north-east of Wells; *R. J. Manning* in *Fl. Som.*

Although most of us are familiar with this kind of variation among raspberries, it seems to be extremely rare with the Rubi Fruticosi. In the second edition of Ray's *Synopsis* (1696), a white-fruited bramble is thus mentioned:—"Rubus vulgaris major fructu albo. The common greater Bramble-bush, with white berries. Hujus non fructus tantum colore albo a vulgaris fructu differt, sed et cortex et folia hilare viridia sunt, cum illius plerunque fusca seu obscure rubentia observentur. Found accidentally in a hedge not far from Oxford; *D. Bobart*." In the third edition of the *Synopsis* (edited by Dillenius) this is constituted a distinct species. Babington in *British Rubi*, p. 1, speaking of Bobart's plant, says:—"It may very probably have belonged to *R. thyrsoides* (*R. fruticosus* W. & N.); for there is a variety of that plant named '*leucocarpus*, carpellis albis' recorded by Seringe in De Candolle's *Prodromus* (ii. p. 561)."

These are the only European records I can find. In any case, prior to Mr. Read's discovery no white-fruited bramble had been recorded in Britain during nearly two centuries. Then, very remarkably, in the space of five years, no fewer than three instances of the occurrence of the variety came under notice, all within the area of the Bristol Coal-fields and the three spots many miles apart from each other. It is unknown in Oxfordshire at the present time.

The bright green, paler foliage observed by Bobart is likewise a feature of our plants. Their peculiarities have been reproduced in seedlings raised from the fruits I distributed.

### 321. *R. pubescens* Weihe.

Native ; in hedges and on a wood-border ; rare and local. July and August.

**S.** Marksbury ; hedge near the lake at Houndstreet ; and in hedges about Berrow, rather plentiful ! *D. Fry.* Edge of a wood above Congresbury ; *Fl. Som.*

### 322. *R. macrophyllus* Wh. & N.

Native ; on wood-borders, roadsides etc. ; rare. July and August.

**G.** On Clifton Down ! *C. Bucknall.* This may be Miss Atwood's station, recorded as *amplificatus* in *Swete, Fl.* Roadside hedge near the hamlet of Rangeworthy between Iron Acton and Wickwar ; *C. Bucknall.*

**S.** In two of the lanes (chiefly under walls) between Beggar's Bush Lane, Abbotsleigh, and Failand Hill. Specimens from one spot near the Tan-pits were thought by Mr. Briggs to come under *VAR. Schlechtendalii*. On the east side of Failand Hill, in a valley down which a stream runs to Failand Farm ; *C. Bucknall.* Border of a fir wood beside the upper Clevedon Road, before reaching the Failand Inn. Clapton-in-Gordano (typical) ; *D. Fry.*

[**R. Sprengelii** Weihe ; in *Journ. Bot.* 1893, p. 115. An error. See *R. Lindleianus*.]

### 323. *R. hypoleucus* Lefv. & Muell.

Native ; in one spot only. The plant formerly known in England as "*R. micans* Gren. & Godr." July and August.

**G.** Clifton Down, 1900, in small quantity ! *C. Bucknall.* Accepted by the Rev. Moyle Rogers.

### 324. *R. pyramidalis* Kalt.

Native ; in open woodland and on commons, frequent. July and August.

**G.** Clifton Down, on slopes below the "Promenade" in good quantity. Near Cook's Folly Wood. Abundant in the Boyd valley below Wyck. On Ivory Hill, near the entrance from a lane to Frampton Cotterell ; *C. Bucknall.* Bury Camp, Moorend. Between Charfield and Damery Bridge ; *D. Fry.*

**S.** Leigh Wood ; *Rev. Aug. Ley.* Compton Dando ; the lane skirting Lord's Wood, Houndstreet, on the Pensford side ; and near Hallatrow ; *D. Fry.* Above the quarry on Backwell Hill. Plentiful on Strawberry Hill, and about Norton's Wood, Clevedon. This was the "intermediate between *leucostachys* and



*villicaulis*” mentioned in my former book (1882), that was determined as above by Mr. Rogers in 1893. Shipham (f. *eglandulosa*); *Fl. Som.*

### 325. *R. leucostachys* Sm.

Native; on roadside wastes and commons rather than in hedges; and on the outskirts and open portions of woods, often forming a large proportion of the undergrowth. Common, and hardly needing a specification of localities.

July and August.

**G.** Clifton Down. Cook's Folly Wood, and by the railways under Sneyd Park. In the “Arbutus Walk,” Henbury; and in the Blaize Castle woodland. Trooper's Hill, Crew's Hole. Avonside woods between Conham and Hanham. Lantern Bottom and Mount Hill, Kingswood. Rodway Hill. Wyck, 1884; *J. G. Baker*. Abundant in the valley below Wyck Rocks. The Golden Valley, Bitton. Hedgerows near Tracy Park. Ivory Hill. By the Frome near Iron Acton. Yate Common, on both sides of the Midland line. Abundant on Bury Hill near Moorend. Lanesides and woodland about Charfield, Tortworth and Falfield. Tytherington Hill.

**S.** Very plentiful in Leigh Woods. Ashton Court Woods. Abundant on lanesides and about plantations between Abbotsleigh and Failand, and over Failand Hill on to the Tyntesfield and Charlton estates. Backwell Hill and Bourton Combe. Limeridge Wood, Tickenham. Norton's Wood and the Court Hill near Clevedon. St. Anne's Wood, Brislington; and thence towards Hanham Ferry. Publow, Woollard, Stanton Drew and Chew Magna; *D. Fry*. Woods above Yatton, Cleeve, Congresbury and Wrington. The Houndstreet Woods. Temple Cloud. Banwell Hill. Worlebury Wood, Weston-super-Mare. Along the boundary walls of upland pastures about Shipham and Tining Farm on Mendip. Priddy, Ebbor and Compton Martin; *Fl. Som.* Downside Common and woodland near Edford. Vobster, Babington, Downhead and Cranmore. Common between Radstock and Frome; also about Wells and Shepton Mallet; *Rev. R. P. Murray*. Claverton, Sham Castle and Monckton Combe near Bath; *C. C. Babington* and *J. G. Baker*.

Certainly the commonest bramble in the district after *R. rusticanus*.

A very pretty small form of this plant reduced in all its parts to about half the usual size, with whiter and harder felt on the under leaf-surfaces, is abundant on the sunny borders of some of the woods in Ashton Park.

Mr. D. Fry had a state with long narrow leaflets and a closer and paler under-surface. His series of specimens, gathered over a wide area—at Woollard, Compton Dando and Houndstreet—show a plant very unlike typical *leucostachys*, which we think may be varietally distinct. It seems to shade towards the next species.

VAR. *gymnostachys* *Genev.*

**G.** A plant found by me some years ago in small quantity on a slope of Rodway Hill, not far from the Manor House, had the characters of this variety and the name was agreed to by the Rev. W. Moyle Rogers. The bushes have since been looked for several times, but I fear they have been destroyed.

**326. *R. lasiocladus* Focke, var. *angustifolius* Rogers.**

Native. Very rare, or not yet fully recognized.

July and August.

**G.** "In the Gully on the Downs, 1902. Named by Mr. Rogers, but I should not think it typical *angustifolius*. It is rather between that and *lasiocladus* type." *Rev. H. J. Riddelsdell*. Roadside on Bury Hill near Moored, 1906; *C. Bucknall*. Abundant there.

On the Bury Hill plant Mr. Rogers remarked (Oct. 1910) "very near my var. *angustifolius*," and continued: "But *R. lasiocladus* can hardly take rank as a good species, consisting rather of a bundle of forms of hybrid origin, with *R. leucostachys* as one parent, and (usually) *R. rusticanus* the other." Whoever spends an afternoon among the brambles on Bury Hill will perceive the cogency of this opinion.

Mr. Fry and I are in some doubt as to whether one at least of our *rusticanus* X *leucostachys* hybrids may not be really this.

**327. *R. mucronatus* Bloxam.**

Native; by woodland paths and on bushy banks; rather rare.

July and August.

**G.** Near the river-bank under Black Rock, 1891 and subsequently! *D. Fry*. In woods by the Avon above Bristol towards Hanham Weir. Between Fishponds and Oldbury Court. Glen Frome near Stapleton. Leap Bridge near Downend. By the roadside from Fishponds to Downend, rather plentiful. Yate Common, in small quantity.

**S.** Sparingly by the G.W.R. under Fox's Wood, Brislington. Pensford; *D. Fry*. Norton's Wood and Norton's Lane near Clevedon. Frequent about woodland near Hallatrow.

**328. *R. Gelertii* Frider.**

Native; on a wood-border; very rare.

July and August.

**S.** Leigh Wood, near the road half a mile from the Suspension Bridge! *Rev. Augustin Ley*.

**329. *R. anglosaxonicus* Gelert.**

Native; in bushy places. The type is apparently very rare: the variety locally common.

July and August.

**S.** Green lane leading from Failand golf-links to the Tan-pits, and on a roadside north of the Failand Inn. On the borders of King's Wood, towards Congresbury; stated by Dr. Focke to be a little different from the usual form, but not in any essential particular. Plants from Brislington and Stanton Drew were submitted by Mr. D. Fry to the Rev. W. Moyle Rogers, and considered by him to be near the type—nearer than to var. *raduloides*. Roadside bank on Naish Hill, Clapton-in-Gordano:—"A variety or form between type and my *raduloides*. Far less strongly armed than the latter."  
—*W. M. Rogers*.



VAR. *raduloides* Rogers.

**G.** Clifton Down, in the "Green Valley":—"I consider your Clifton Down plant just what I mean by var. *raduloides*; and a well-marked var. I think it."—*W. M. Rogers*. Bushy bank by the railway under Sneyd Park. In the "Arbutus Walk," Henbury; and plentiful about the Blaize Castle and Henbury woodland. Abundant in old quarried ground by the Avon below Hanham. And on the same kind of ground in the Frome Valley at Downend and Frenchay. Leap Bridge, between Downend and Mangotsfield. Wyck, 1884; *J. G. Baker*.

**S.** Leigh Woods: a good deal has been built over but some remains. Abundant on the skirt of Fox's Wood, Brislington; and on the wooded river-bank towards St. Anne's. Lord's Wood, Houndstreet; *D. Fry*. Plentiful in two or three places at Stanton Drew; and near Stanton Wick; *D. Fry*. In a lane leading from Pensford to Upper Stanton. Near Chew Magna. Between Woollard and Compton Dando. Sparingly on the Congresbury side of King's Wood. Banwell Hill. Norton's Lane and Strawberry Hill, Clevedon. Temple Cloud. Bishop's Wood, Wells; *Fl. Som*.

This is the bramble that at one time was thought to be *R. Radula* Weihe, and was published by me (1882) under that name. But it appears that we have not got the German plant in this district, unless there be a little near Shepton Mallet (see *Fl. Som*). Our plant—very strong, prickly, and handsome; if somewhat coarse—stands midway between *Radula* and *anglosaxonicus*. It was described by Mr. Rogers in 1892, and is believed to be endemic. "The Hanham plant is one of several I had before me when I wrote the description of *raduloides*, and exactly represents that variety."—*W. M. Rogers*.

The specimens issued in "Set of British Rubi, No. 62" were gathered by the writer at Clifton and Henbury.

There are on Clifton Down some *raduloides* hybrids whose other constituents cannot be certainly stated.

330. *R. infestus* Weihe.

Native. Very rare.

July and August.

**S.** Downside Common near Edford! *D. Fry*.

331. *R. Borreri* Bell-Salter.

Native; in open ground upon pennant sandstone; rare and local.

July and August.

**G.** In two spots on the lower (Siston Common) side of Mangotsfield Station, but not plentiful.

**S.** Very abundant between Brislington and Keynsham, on both sides of the G.W.R. about a mile north-west of Keynsham. Downhead Common; *Fl. Som*.

VAR. *dentatifolius* Briggs.

**S.** Among the sand-hills near Berrow, 1892. "Just like Briggs' plant, and a most interesting new county record"; *W. Moyle Rogers*.

My friend the Rev. E. S. Marshall, in *Journ. Bot.* 1907, p. 221, gives me credit for naming this addition to the Somerset flora; but it was in fact determined by Messrs. Fry and Rogers.

### 332. *R. Drejeri* *G. Jensen.*

Native; in bushy places; very rare.

July and August.

**G.** On Durdham Down by Sneyd Park: a vigorous growth. Mr. Rogers wrote respecting my specimen—"I call this good *R. Drejeri*. I say 'good' rather than 'typical' because in so variable a species it is not easy to fix a type. But these pieces of yours agree admirably with my Callander and Stirling specimens, as well as with those of Friderichsen and Gelert from Sleswig. New for Gloucestershire."

**S.** On the Burtle peat moor; *H. S. Thompson.*

VAR. **Leyanus** *Rogers.*

**G.** By the roadside and in open woodland near Damery Bridge; abundant. This grows in the Forest of Dean and is plentiful in Herefordshire.—*Ley.*

### 333. *R. echinatus* *Lindley.*

Native; on borders of woods and rough, bushy ground; rather common.

July and August.

**G.** Old quarries in Glen Frome below Stapleton. Here and there in the Frome valley above Stapleton; at Downend, Frenchay and Moored. On Bury Hill and Camp; and by roadsides towards Winterbourne Down. Field hedges near Winterbourne Church. Skirt of a wood by the Frome south of Iron Acton. Field hedges near the old tram lines north of Mangotsfield Station. About some sand-pits on high ground above Bitton. In the valley below Wyck. Charfield, in several spots; and on the way to Damery Bridge.

**S.** Wooded riverbank at St. Anne's, Brislington; and by Fox's Wood Quarries. Woodland between Abbotsleigh and the Abbot's Pond. Leigh Wood; *C. C. Babington.* Roadsides on Failand Hill. Near Ursleigh Hill; *D. Fry.* Frequent between Pensford and Houndstreet. Near Publow, and abundantly in a lane at Woollard; *D. Fry.* Hedges at Stanton Drew; *D. Fry.* Frequent about Compton Dando. On the Congresbury side of King's Wood. Court Hill and Norton's Lane, Clevedon. Plentiful about the woods between Hallatrow and High Littleton, and between Hallatrow and Hinton Blewett. Downside Common, Edford. Downhead Common. Gurney Slade; in Crox Bottom and Slade Bottom. Wood on the hill above Birnbeck, Weston-super-Mare.

In our area this is decidedly the most frequent of the glandular brambles. It was formerly confounded with *R. rudis* Weihe, under which name the older records were mostly made and published; e.g. *Swete's Flora* and my own first edition.

The fruit of this species is very good: large, juicy and of a fine acid flavour.



**334. *R. rudis* Wh. & N.**

Native; in open woodland; very rare. It is scarce and local throughout the West Country. July and August.

**G.** Plentiful in the more open spots of Westridge Wood above Wotton-under-Edge over a considerable area, but not distributed throughout the wood. First observed there in July, 1897. It appears to have only one other station in the county—at Symond's Yat.

**S.** Several strong bushes by the G.W.R. main line under Fox's Wood, Brislington. The locality is a short distance west of the signal-box. It is the only one yet recorded for this bramble in the county of Somerset, and was discovered by Mr. David Fry in 1892. A hybrid, believed to be *X Lindleianus*, grows at the same spot.

**335. *R. oigoclados* Muell. & Lejv.**

Native; very rare.

July and August.

**G.** Cock Road and Mount Hill, Kingswood. "Not typical, but I place it here rather than with *R. mucronatus*."—Rev. W. M. Rogers.

A very striking plant, with obovate cuspidate leaflets narrowed below, a very lax panicle and reflexed sepals.

**VAR. *Bloxamianus* Colem.**

**S.** For a few yards on the bushy side of an old lane that runs from Longbottom Farm to Axbridge, under the north face of Shuteshelve Hill. Discovered by the author in 1908.

The *R. fusco-ater* of Thwaites in *Swete, Fl.* probably belonged to this aggregate.

**336. *R. Babingtonii* Bell-Salter.**

Native; on the edge of a wood; very rare.

July and August.

**S.** Abundant over a space of rough bushy ground on the skirt of King's Wood, towards Congresbury.

A small procumbent plant, very different in habit from the sturdy growth I am acquainted with on the Quantocks and in Sussex. It is, no doubt, one of those anomalous forms that are not infrequently met with in a good bramble district. Dr. Focke and Mr. Rogers both had specimens. The former, who at that time (1892) did not know *Babingtonii* very well (it has not been found in Germany), suggested another name and thought the example might have been somewhat modified by a sterile (limestone) soil. Mr. Rogers reported:—"I believe that your Congresbury plant is certainly one of the weaker forms of *R. Babingtonii*. I do not hesitate to credit N. Somerset with the species on the strength of your specimens."

The Leigh Wood bramble, of many vicissitudes, that stood as "*Bloxamii*" in my first edition, was subsequently placed under *Babingtonii* by both Babington and Focke; but on being viewed *in situ* by Dr. Focke when on a visit to this country was finally determined to be *R. fuscus* W. & N. See

Murray's *Notes on Somerset Rubi* in *Journ. Bot.* 1886; *Exchange Club Report*, 1886; and *Notes on British Rubi* by Focke, in *Journ. Bot.* 1890.

**337. *R. ericetorum* Lefv.**

Native; in a wood; very rare.

July and August.

**S.** "Leigh Wood, along a wall bounding the private part, Aug. 1905."—*Rev. Aug. Ley.*

[***R. Bloxamii* Lees.**

In 1891 a plant found sparingly by Mr. D. Fry on the Burtle peat moor was pronounced by Mr. Briggs to be this species; although, the leaf-serration being shallow, it was not quite satisfactory.—*Journ. Bot.* 1892, p. 12. Mr. Fry, however, could not find his single bush again, and on reconsideration we concur that for the present it will be well not to include it in this list. The disappearance of the "*Bloxamii*" of my first edition (1882) is explained above.]

**338. *R. fuscus* Wh. & N.**

Native; in open woodland; rare and local.

July and August.

**G.** By the railway under Sneyd Park; a luxuriant form in small quantity.

**S.** Open spots in Leigh Woods, plentiful. It occurs on both flanks of Nightingale Valley, but chiefly about the roads and paths on the southern side, where much of it has been enclosed or built over. It is abundant also on the edges of coverts in Ashton Park; and Mr. Bucknall has found an outlier at Abbotsleigh.

This fine bramble passed in succession under at least half a dozen names before Dr. Focke saw it growing in Leigh Woods (see *R. Babingtonii*). There can be little doubt that it was the "*scaber*" recorded by Mr. T. B. Flower in *British Rubi* from the same locality. In some situations certainly, as Mr. Murray has pointed out, the Leigh Woods plant does approach *scaber* (and several other species) very closely. Dried specimens of these critical things are difficult to understand unless a sufficient series can be examined.

**339. *R. pallidus* Wh. & N.**

Native; on a wood-border; very local.

July and August.

**S.** Abundant on the marshy and wooded banks of a stream skirting Downside Common near Edford.

First record for Somerset: the author in *Journ. Bot.* 1889, p. 118.

I gathered this at Edford in 1885 and for a while failed to get a name for it. At that time *R. pallidus* Wh. & N. was unknown in Britain. About two years later my plant was determined by comparison with specimens received from the Rev. E. F. Linton, who had discovered the species in Norfolk. Mr. Murray had likewise made a gathering at Edford and had found his specimens correspond so closely with some named *humifusus* by Prof. Babington that he published them under that name in his *Notes on Somerset Rubi*, 1886.

This is the true Continental *pallidus* of Weihe; not to be confused with a variety of *R. Kochleri* named *pallidus* by Babington. The latter is now treated as a distinct species—*R. dasyphyllus* Rogers.



**340. *R. scaber* Wh. & N.**

Native; in woodland; very rare.

July and August.

**S.** Woods between Hallatrow and High Littleton, in profusion! *C. Bucknall*. Wood-border between the Suspension Bridge and Rownham Ferry, 1905! *Rev. Aug. Ley*.

More mistakes have been made in the endeavour to understand this species in its relation to the Bristol flora than in the interpretation of any other. Cross-alliances and resemblances are so numerous in the group to which it belongs that differences of opinion respecting our gatherings were inevitable, even amongst the best-informed students of *Rubus*. Plants growing in this district have been repeatedly assigned to *R. scaber* by eminent botanists; and as often, after further study, have been relegated elsewhere. Thus we have had to put the Leigh Woods *scaber* to *fuscus*; that from Sneyd Park (*Journ. Bot.* 1892, p. 12) to *adornatus*; that from the Wyck Valley to *hystrix*; and that on the peat moor to *ochrodermis* (*Fl. Som.* pp. 113, 416). A similar tale, with variations, has been told of many other districts. Such experiences cannot be avoided and they ought not to be discouraging. For "we must make mistakes before we get to know; and, more, our very mistakes, oftener than not, help us to know more surely."—*Rogers*.

**341. *R. hystrix* Wh. & N.**

Native; in woods and bushy places; rather rare.

July and August.

**G.** Wood at Stapleton; *Herb. Stephens*, fide *Babington*. Wyck Rocks; *J. G. Baker*. On rough bushy banks about quarries in the Wyck Valley, rather plentiful; named by the Rev. W. M. Rogers.

[**S.** The plant at King's Wood, Yatton (*Fl. Som.* pp. 115, 116), was ultimately determined as *R. Babingtonii*. Those from Worlebury Hill and Bishop's Wood, Wells, published (1885) in my *Additions*, proved to be *R. infecundus*.]

I am here departing from the *Lon. Cat.* ed. X arrangement hitherto followed in this enumeration of Bristol Rubi. In the Catalogue, *hystrix*, *infecundus* and *adornatus*—with two others in which we are not at present interested—are combined as sub-species or varieties under an aggregate *rosaceus*. This method, it seems to me, is both unwieldy and uninformative. Even if it be shown that by adopting such a course we escape some difficulties, it is obvious that other inconveniences, equally troublesome, would result and no profit accrue. The three forms above named, that I now class separately, have in this district (the two latter especially) well-marked distinctive characters of average constancy, and can be readily recognized. There can be no advantage in lumping them with several others into a "species collectiva" under a type (*R. rosaceus* Wh. & N.) so rare and so little understood that not long ago it was spoken of as "a mere name" and until recently was hardly known with certainty to be a British plant. Focke (*Notes on English Rubi* l.c.) not only separated *hystrix* from *rosaceus* but placed it in another sub-division.

I confess that, unfortunately, I have never grasped a conception of "sub-species." The term has been applied to a supposed rank standing between

species and varieties—a rank of unequal and indefinite alignment whose intermediate position cannot be more precisely indicated than by the term in question. Mr. Rogers says of his sub-species (*Preface to Handbook*):—“More distinct and constant in character than ordinary varieties they will surely be found, all of them, while most careful botanists might perhaps shrink from giving them full specific rank.” My possible failure will be not so much from lack of care, as from believing that a clearer idea of plants that differ can usually be gained by regarding them as distinct species, rather than by massing them together in aggregates as varieties, sub-species or what not.

### 342. *R. infecundus* Rogers. (Described as a sub-species.)

Native; in open woodland and on bushy hillsides; locally plentiful and well distributed in both divisions of the district. In some woods it forms a large proportion of the bramble-flora. July and August.

**G.** By the railway under Sneyd Park, and in Cook's Folly Wood. Very abundant about old quarries by the Avon below Hanham Weir. In the Frome Valley about Oldbury Court Woods! *Miss Roper*. And between Fishponds and the Frome. Damery Bridge near Charfield, and some roadsides adjacent.

**S.** Leigh Woods, by the drive to the Court and in several other open spots. By the G.W.R. under Fox's Wood, Brislington; and lower down the river towards St. Anne's. Plentiful on slopes of Failand hill facing east and north-east. Abundant in the eastern part of the wood on Worlebury Hill, Weston-super-Mare. Stoke Lane near Edford; *D. Fry*. Congresbury and Bishop's Wood, Wells; *Fl. Som.*

One of the most strongly marked plants of the district, very constant in aspect and retaining the same general characters in many widely-spaced localities. Its soft, oval, yellowish leaflets and reddish glandular long-pointed clasping sepals, make it a striking bramble. It ripens fruit shyly and irregularly, with but few drupels, as has been noted in other districts.

### 343. *R. adornatus* P. J. Muell.

Native; very local and but little of it at any one spot. July and August.

**G.** Along the bank of an accommodation road from Sneyd Park to the riverside meadows, now closed to the public. The plant there was at first thought to be *R. scaber*; but Mr. Rogers reported:—“This is normal West England *adornatus*, identical with specimens from Sutton Holms, Dorset.” Wood bordering Kingsweston Down; *Rev. Aug. Ley*.

**S.** Leigh Wood, 1895; *Rev. Aug. Ley*. Downhead Common? fide *Focke* in *Fl. Som.*

### 344. *R. Koehleri* Wh. & N.

Native; in open bushy ground. Rare?

July and August.

**G.** By the accommodation road to the riverside under Sneyd Park; named by Dr. Focke in 1892. Wyck; *Herb. Jno. Ball*; named also by Focke without comment. In the Frome valley near Stapleton and Downend.



**S.** Near Houndstreet; *D. Fry*. Banwell Hill. Downside Common.

There may be, and probably are, other plants in the district that should be placed here, but the species is most obscure and difficult to understand. No British author writes of it with any confidence. Mr. Moyle Rogers says the type *seems* to be rather widely distributed, but is apparently rare in S. England. Mr. Murray's latest conclusion (*Fl. Som.* pp. 410, 417) was that it did not exist in Somerset. And indeed but few records of its occurrence anywhere in this country have been made without qualifications of more or less importance. Even the authentic illustrative specimens issued in the "Set of British Rubi" are owned by the compilers to be anomalous:—"a slender, weakly-armed form of the type." Widely differing plants collected in several counties have been named *Koehleri* for me. It is at length being realized, however, that we have gone too far with the attempt to force our insular flora into line with that of Central Europe.

### 345. *R. dasyphyllus* Rogers.

Native; on commons and moory ground: sometimes in woods and loose, ill-kept hedgerows. Rather common. July and August.

**G.** Clifton Down, near Bridge Valley Road. Rodway Hill. Woods by the Avon between Conham and Hanham Weir. Hedges about Northwoods, Winterbourne and Stoke Gifford; and between the latter village and Hambrook. Ivory Hill near Frampton Cotterell. Bury Camp. Abundant on Yate Common, and also on the west side of the railway. Wyck.

**S.** St. Anne's Wood; and in a wood on the steep between Conham Ferry and Brislington. Leigh Woods; *C. C. Babington* in *British Rubi*. Plentiful at Ursleigh Hill, Pensford; and in Lord's Wood towards Houndstreet; *D. Fry*. Banwell Hill. Downside Common near Edford. Near Gurney Slade; *Rev. R. P. Murray*. Wooded hillside between Cheddar and Axbridge; *J. G. Baker*. Downhead Common; *Fl. Som.*

This is the form which at one time massed largely under an aggregate *R. Koehleri* as *VAR. pallidus* of Bloxam and Babington (not the *R. pallidus* of Weihe and Nees von Esenbeck). It is believed to be endemic, and was described as a distinct sub-species by the Rev. W. Moyle Rogers in 1899.

### 346. *R. viridis* Kalt.

Native; in one tract of woodland; very local. July and August.

**S.** Plentiful in Highbury Wood near Hallatrow, where it was discovered in 1899 by Mr. C. Bucknall and named by the Rev. W. Moyle Rogers.

### 347. *R. Kaltenbachii* Metsch.

Native; in woods and thickets; rather rare but locally plentiful.

July and August.

**G.** Slope below the Promenade on Clifton Down. Formerly in plenty at the lower end of an accommodation road leading from Sneyd Park to the riverside, now closed to the public. In several spots by a path leading from

the Avon behind some riverside cottages towards Hanham village. And near the old spelter works in the same locality.

First record for Gloucestershire: the author in *Report of Exch. Club*, 1891, p. 333.

**S.** Leigh Wood, near the head of the second valley below the Suspension Bridge, and in several other places. Near Compton Dando, in a wood and also in a field hedge; *D. Fry*. Abundant in woods near the lake at Houndstreet: by some of the paths it is the only bramble for a considerable space; *D. Fry*. Borders of King's Wood towards Congresbury, well distributed; and on the edge of paths and clearings throughout the woodland from Rhodyate Hill to Cleeve, in abundance.

A very showy and distinct-looking bramble of unvarying features. Local experience induces me to class it separately rather than as a segregate of *R. hirtus*—a shadowy indefinable type, unknown in the West of England. Among the more remarkable characters of *Kaltenbachii* is a long, drooping, pyramidal panicle, tapering gradually to a point formed of a single flower. Stamens very long, at least double the length of the styles.

#### 348. *R. ochrodermis* *Ley.*

Native; on the peat moor only. Very rare.

July and August.

**S.** Shapwick Moor. A plant formerly placed under *R. scaber*.

#### 349. *R. dumetorum* *Wh. & N.*

Native; in roadside hedges and wastes; less frequently in woods; common and most variable.

June to August.

As an aggregate this species is quite characteristic, but the published varieties or segregates are bewildering, there being nearly a dozen of them at the present time. In their extreme forms these are no doubt readily distinguishable; but, as usually happens in similar groups, a large proportion of bushes prove to be intermediates, not referable with certainty to either name in the catalogue. For that reason I find it impracticable to describe in accurate detail the distribution of the various segregates in this district.

There is one rather curious fact to be noted respecting the very great variability of this aggregate, *viz.* that it almost entirely depends on the clothing and foliage of the barren shoot; the panicle features remaining much the same throughout, and exhibiting differences of quite minor importance. The stem may either be crowded with the densest possible armature of prickles, aciculi and glands; or, at the other extreme, be nearly free from them, carrying only a very few of each.

Our commonest form is certainly *var. diversifolius* Lindl., essentially a hedge bramble and of frequent occurrence.

The *var. tuberculatus* Bab. or *scabrosus* of the same author, is also rather common. Specimens with big white flowers from open spots in Leigh Woods were said by Mr. Rogers to be "very much my idea of *scabrosus*"; and other gatherings have been approved at various times from Brislington, Knowle, Whitchurch, Failand, Congresbury, Kenn, Milton and Hallatrow.



A plant very plentiful in hedges between Winscombe and Banwell, and also in Featherbed Lane between Stanton Wick and Clutton, was formerly judged by Mr. J. G. Baker to be "just the *R. althæifolius* Host of *British Rubi* and the *Manual*." Another very robust, prickly bramble that is conspicuous about Berrow Church and village has been distributed by me as *R. deltoideus* P. J. Muell. But neither of those Continental plants (the names are possibly synonymous) is now considered to be British; and so the local forms in question, although perhaps they deserve a varietal name as much as some others, remain unclassified. The late Lord de Tabley suggested rather happily that *althæifolius* had been made a botanical dust-bin for intermediates in this section. Such receptacles are not unknown in complicated genera. Another bramble expert wrote:—"As to the many bushes to which we give the name *althæifolius* on Babington's authority, I can only say now that they were probably *cæsius* hybrids!"

The latest form of this aggregate to be discriminated is *var. raduliformis*, described in 1904 by the Rev. Augustin Ley. This has been pointed out to me by Mr. Ley in Cheddar Gorge.

### 350. *R. corylifolius* Sm.

Native; in hedges and on commons. Rather common and widely distributed.  
June to August.

*var. a. sublustris* Lees.

**G.** Several bushes on St. Vincent's Rocks near the Bridge, and more on Clifton Down. Filton Meads. Stoke Gifford. By the Frome near Frenchay. Green lane at Calebs by Northwoods. Westerleigh. Frampton Cotterell. Wyck.

**S.** Leigh Woods. Hedges and thickets about Pensford, Houndstreet and Stanton Drew; *D. Fry.* Backwell Hill. Laneside, Kenn; and Walton-by-Clevedon; *W. E. Green.* Banwell. Lanes about Shipham and Rowberrow! Various places on the slopes of Mendip; *Fl. Som.* Cheddar! *J. G. Baker.* Hedges, Emberrow! *Miss Roper.* Downside Common near Edford. Abundant about Vobster, Downhead and Leigh-on-Mendip! *D. Fry.* Conspicuously abundant by roadsides on Marchant's Hill, Gurney Slade; a form nearest to *sublustris*, though with a rather angular stem. Butleigh Hill; and Dean near Cranmore; *Fl. Som.* On the peat moors. Common everywhere near Bath; *J. G. Baker.*

*var. b. cyclophyllus* Lindb. = *conjungens* Bab.

**G.** Near Oldbury Park in Glen Frome. Ditch-banks in the low ground near Aust. Roadside wastes between Thornbury, Rockhampton and Hill.

**S.** Between Stockwood and Whitechurch. Frequent about Pensford, Stanton Drew and Stanton Wick; *D. Fry.* Hedges between Winscombe and Banwell. Loxton. Meare.

The *var. fasciculatus* P. J. Muell = *R. corylifolius*  $\gamma$  *purpureus* Bab., found by Prof. Babington near Bath (*Fl. Som.*), is now considered to be a *dumetorum* form.

Hybrids with *rusticanus* and *cæsius* are mentioned under those headings.

**351. *R. Balfourianus* Bloxam.**

Native ; in hedges and thickets ; very rare.

July and August.

**S.** Whitchurch ; *W. H. Painter* fide *Purchas*. Slopes of Mendip near Wells ?  
*Fl. Som.* Ashcot peat moor. By the canal at Claverton, Bath ; *C. C. Babington*.

**352. *R. Bucknalli* J. W. White.**

Native ; on a spur of the Cotswolds ; very local.

July and August.

**G.** Abundant in open glades and on the borders of Westridge Wood above Wotton-under-Edge, and along the road that leads thence to Nailsworth ; with a wider range than that of *Stachys alpina*, although covering the same ground.

Detected as a new form by my friend Cedric Bucknall, and described by me under his name in *Journ. Bot.* 1899, p. 389. So far this bramble has been found elsewhere only in Herefordshire, where Mr. Ley reports it to grow plentifully on the borders of woods several miles apart, near Mordiford.

**353. *R. cæsius* L. Dewberry.**

Native ; in loose hedges and under walls by roadsides, chiefly on clay and limestone and often in damp situations. Common and generally distributed.

May to August.

This species, with *R. rusticanus*, forms almost the entire bramble flora of the great limestone area on Mendip, growing everywhere by waysides and boundary walls up to 900 feet. Where other species occur, a sandstone outcrop is not far off. At the same time *R. cæsius* is equally common in the lowland marsh tracts of the Cheddar Valley, and those between Nailsea, Yatton and Clevedon ; both in hedges and on ditchbanks. Some plants with double flowers (expanded on May 28) have been observed on a roadside between Cheddar and Wedmore.

The dewberry is so extremely variable that many varieties have been described in books. But these are now disregarded ; for, as Mr. Ley states, forms that are referable to none of the named varieties are of the greater frequency ; and Mr. Rogers finds himself " quite unable to give reliable definitions of the supposed varieties."

A hybrid  $\times$  *Idæus* = *R. pseudo-idæus* Lej. was gathered on a ditchside near Congresbury in 1883 by Mr. Archer Briggs, in company with Messrs. Fry and Murray. For some time Mr. Murray was in doubt about this. He wrote me that it should be dropped, and in his *Notes on Somerset Rubi*, pub. 1886, stated that my " record in the ' Flora of the Bristol Coal-field ' is an error." Later however his view changed, and in his own copy of the *Notes* now before me I find the words " an error " erased, and " correct " substituted. The plant appears in *Fl. Som.*

A *rusticanus* hybrid, plentiful near Keynsham, is mentioned under that species.

The cross with *corylifolius* is recorded by Mr. D. Fry from Stanton Prior, in *Journ. Bot.* 1897, p. 124. Another, quite sterile, whose parentage is not clear, but it is probably of the same origin although more decidedly cæsian, grows abundantly in the shelter of roadside walls and in hedges



about Shipham-on-Mendip. A very weak plant, apparently this hybrid, occurs on Leechpool Farm, N. of Yate, G.

**354. *R. saxatilis* L.** *Stone Bramble.*

Native ; in rocky woods ; very rare.

May and June.

**S.** Limestone wood near Banwell Castle, 1883 ! *H. S. Thompson. Journ. Bot.* 1889, p. 183. Asham Woods, S.W. of Frome ; fine and in some plenty, 1883 ; *Rev. R. P. Murray.*

Although frequent in the North and in Ireland, this is a rare plant in the West of England. In Devonshire it was formerly known in two localities, but since 1837 can be found in only one. It occurs in North Gloucestershire but not in Herefordshire.

The five herbaceous Rubi of the European flora are in strong contrast to those of the fruticose section of the genus, in that not one of the five possesses a synonym or named variety !

**GEUM** *Linn.*

**355. *G. urbanum* L.** *Wood-Avens.*

Native ; in hedges, woods and bushy places, very common. June to August.

**356. *G. rivale* L.** *Water-Avens.*

Native ; in damp woods, peaty meadows and wet hedge-bottoms ; rare.

June and July.

**G.** The Lower Woods, Wickwar, in several spots ! *Capt. Gordon.*

**S.** Long Ashton ; *Swete, Fl.* Formerly (about 1840, see *Phytol.* I, p. 69) in some plenty in damp meadows about Nailsea ; *T. B. Flower.* I have no personal knowledge of the plant in those localities. In 1894 Charles Withers, a ganger on the G.W.R. and a keen-eyed botanist, pointed out to Mr. Fry two or three plants in a withy-bed by the Avon just above Saltford. I saw one good plant there, then coming into flower, in May, 1895. A year later, Mr. E. G. Aldridge found some in flower and sent me a specimen. Since then nothing has been seen of it at the spot, so we fear it has disappeared. Damp ravine above Ebbor Rocks, 1881 ; *J. G. Baker.* East Harptree ; *Rutter's Hist. N.W. Som.* East Harptree, 1849 ; *Herb. Lawrence.* Compton Martin Wood and Stratford Lane ; *Dr. Gough.* Lane near Moreton, between Chew Stoke and the Blue Bowl Inn ; and in the Blue Bowl lane between Chew Stoke and Compton Martin ; *R. V. Sherring.* In damp hedge-bottoms on both sides of the way between Sutton Wick and the Blue Bowl ! The four last records all refer to a small area, but not all to the same lane. Stoke Lane Valley, Edford, 1886 ; *Miss Livett.* Edford, 1900 ; *C. Bucknall.* In a large peaty meadow adjoining a stream about half-way between Hallatrow and Hinton Blewett. The plant is scattered over the meadow rather thinly ; many of the stems being single-flowered and short. Batcombe Wood ; Mells ; Babington ; and Gurney Slade ; *Fl. Som.* Asham Wood, between Nunney and Downhead ; *Dr. H. F. Parsons.* Several localities about Bath are given in *Fl. Bathon. Suppl.*

HYBR. X *urbanum* = *G. intermedium* Ehrh.

"Asham Wood, with *G. urbanum* and *G. rivale*;" Dr. H. F. Parsons. Asham Woods; *Fl. Som.*

### ROSA Linn.\*

#### 357. *R. spinosissima* L. Burnet Rose.

Native and abundant among sand-hills on the coast of North Somerset. Occasionally in thickets and wood-borders inland, but very rare and rather doubtfully wild away from the sea. May and June.

**G.** Blaize Castle Woods, June, 1836; *Miss Butterworth* in *Herb. Powell*. Several small bushes among underwood near the summit of the Pillar Rock at the west end of Blaize Castle Valley! June, 1893; *Spencer G. Perceval*. Seven were counted there in 1910. Two clumps on a very steep hillside above Lawrence Weston! June, 1906; *Spencer G. Perceval*. Both these localities face northward, and Mr. Perceval's surmise that this rose is likely enough to be present elsewhere on the north face of the range between Thornbury and Shirehampton may prove to be well founded.

**S.** Clevedon; *T. B. Flower* in *litt.* Clevedon, 1873; *J. C. Melvill* in *Fl. Som.* Cadbury Camp near Clevedon, one bush; *Miss Livett*. Abundant for several hundred yards along the inner face of the sand-hills in Kewstoke Bay. These sand-hills (they are now enclosed) once formed an old coast-line on the Channel shore. There is now a road between them and the present beach, and for a long while I failed to find the locality on account of its having been fenced in. Weston-super-Mare, no date; *Herb. Stephens*. *Ibid.* June, 1843; *Herb. Powell*. Mrs. Gregory (1895) found some bushes near the Town Quarry, and in one or two other spots on that side of the wood at Weston. Canon's Wood, Weston-in-Gordano, one bush; *Miss Livett*.

The two old bushes to which I drew attention twenty-five years ago still flourish in the strip of shrubbery at Clifton "Observatory."

In Kewstoke Bay the majority of plants have the peduncles and lower portion of the calyx-tube more or less glandular-hispid. The other form with those parts glabrous (*R. pimpinellifolia* L.) is also there in small quantity. With respect to the characters of these two forms or varieties, Babington's *Manual*, ed. ix, is in contradiction to other authors.

An anonymous correspondent of a Bristol newspaper in April, 1908 called attention to the existence (in a dealer's hands, price 21/-) of a manuscript list of "Plants in the Vicinity of Bristol" stated to date from about 1800. The letter expressed surprise that a production so specially valuable to local botanists had not been secured. By the kindness of a member of the Cotteswold Field Club who was induced to buy it, I have had the privilege of examining this MS. It is written on 37 pages of paper bearing a water-mark of the year 1825, and is evidently the work of a practised hand. Included among the more interesting contents is the name of *Rosa spinosissima*. At about that date Mr. S. Rootsey

\* For the most recent review of British Roses the reader is referred to two papers by Major A. H. Wolley Dod, published in the *Journal of Botany*, 1908-1910, and afterwards reprinted.



was the most prominent Bristol botanist, and one may conjecture that the list is possibly his work. But, unfortunately, it bears no author's name, no dates of observation nor any localities for the plants mentioned, save in two or three unimportant instances. We cannot even learn if the entries refer to Gloucestershire or Somerset, and so for this present purpose the bald catalogue is useless. I should not have described it here had it not been so conspicuously advertised in the Bristol Press.

**358. *R. tomentosa* Sm. *Downy-leaved Rose*.**

Native; in woods and hedges, on bushy hills and about old quarries; rather rare. The bushes are, as a rule, solitary and variable. June and July.

**G.** Trooper's Hill, Crew's Hole; *Herb. Stephens*. Above the Frome at Cleeve Hill, 1900. Loose hedge on a roadside between Parkfield and Westerleigh. Hedges near "The Lawns," Alveston. On the eastern slope of Westridge Wood near Wotton-under-Edge. Nibley Knoll. On a bushy bit of common by Leap Bridge near Downend.

**S.** Stockwood Lane; *Herb. Stephens*. Norton Hautville; Stanton Drew; and Featherbed Lane near Clutton; *D. Fry*. Chew Magna. Dinder; Croscombe; and Wells; *Miss Livett*. Weston Hill; *St. Brody*. West Harptree. Lower edge of Downside Common, Edford; *C. Bucknall*. Baltonsboro'; and Butleigh; *Fl. Som.* Between Catcott and Shapwick, 1844; *Herb. Clark*. Prior Park; and Hampton Rocks, Bath; *Fl. Bathon. Suppl.*

**VAR. *subglobosa* Sm. *R. Sherardi* Davies.**

**G.** Mount Hill, Kingswood, 1890. The Golden Valley, Bitton.

**S.** Stanton Drew; and Downhead Common; *D. Fry*. Confirmed by *Mr. J. G. Baker*.

In this variety the leaf-serratures are often not so compound as in the type, but an interesting rose that grows in some quantity by the foot-path from Stoke Gifford to Hambrook has leaves that are almost simply serrate. Mr. Ley, who had given much attention to this group, could not name it, and suggested that it might be a hybrid. For the present it had better be placed here.

**VAR. *scabriuscula* Sm.**

**G.** Near Crew's Hole, above the Avon.

**S.** Bushy bank of the river opposite Sea Mills; and on the edge of Leigh Wood over a quarry higher up the Avon. Walton Hill, Clevedon. Wells; *Miss Livett*. Pensford; *C. Bucknall*.

On specimens from Mount Hill, Kingswood, (the locality has been destroyed by levelling) Prof. Crépin reported:—"Je suis assez porté à voir dans cette forme une variation du *Rosa tomentosa*, voisine du *R. subglobosa* Sm. Ce dernier n'est qu'une variation du *R. tomentosa*." And he continued:—"Au lieu de faire des observations particulières au sujet de chacun des échantillons que j'ai vus, je crois préférable de me borner aux remarques suivantes. Le

classement naturel des nombreuses variations du *R. tomentosa* reste encore à découvrir. D'autre part ces variations sont tellement nombreuses qu'il est aujourd'hui extrêmement difficile, pour ne pas dire impossible, d'identifier ces variations aux variétés décrites par les auteurs, d'autant plus que ceux-ci sont loin de s'entendre sur les caractères attribués à ces variétés. Cette difficulté m'a fait renoncer, du moins provisoirement, à donner des noms aux variations soumises à mon examen." A most reasonable reflection: seeing how hard it is to find even two rose bushes that agree exactly in possessing the minutely detailed characters that have been applied to named varieties in some groups.

**359. *R. Eglanteria* L. *R. rubiginosa* L. Sweet Briar.**

Native; on bushy hillsides; very rare.

June and July.

**G.** Aust Cliff, July, 1868; *Herb. St. Brody*. Two small bushes, at some distance from each other, on the shingly Severn beach below New Passage, amongst Horned Poppy; detected by the Misses Cundall, 1910. Apparently of recent introduction.

**S.** Walton Castle Hill, Clevedon; widely distributed both on the top of the hill and on slopes at the Walton end. There being plenty of *micrantha* associated with it, an instructive lesson may be had in comparing the two species side by side. Cadbury Camp; *Mrs. Gregory*. Whatley Combe, 1881; *Dr. H. F. Parsons*. Recent evidence of the presence of the plant at the last-mentioned localities would be acceptable. All Swete's stations for this rose belong to *R. micrantha*.

**360. *R. micrantha* Sm. Small-flowered Sweet Briar.**

Native; in hedges, the open parts of woods and on bushy hillsides; rather common.

June and July.

**G.** St. Vincent's Rocks, 1843; *Thwaites* in *Herb. Br. Mus.* The Black Rock Gully. Clifton Down. Cook's Folly Wood. Combe Down, Henbury! *Miss Roper*. Glen Frome near Stapleton, and at Frenchay. Kingswood Hill, 1880. Field hedge, Filton. Earthcott. Roadside near Aust. By the trap quarry near Damery Bridge; *C. Bucknall*. Westridge Wood near North Nibley.

**S.** Leigh Woods; on the edge overlooking the Avon, and in several open spots near the Abbotsleigh Road, one or two of which remain unenclosed. Field hedges between Bourton and Barrow Court. Chelvey Batch, with aciculate fruit. Stockwood Lane! Plentiful on Walton Castle Hill, and in Canon's Wood. Cadbury Camp near Clevedon. Winscombe! *Miss Roper*. Brean Down, 1881. Ebbor; Butleigh Hill; and Shepton Mallet; *Fl. Som.* Frequent about Wells; *Miss Livett*. Banner Down, Bath; *Rev. L. Blomefield*.

Miss Livett informs me, on the authority of Major Wolley Dod, that the Cadbury Camp rose is *VAR. permixta* Déségl.

**VAR. *hystrix* Leman.**

**G.** St. Vincent's Rocks; *Dr. St. Brody* in *Baker's Monograph*.



**S.** Cheddar, 1907! *Miss Roper*.

The disappearance of *VAR. Briggsii* is explained below; and a note on the subject from me to Mr. Murray appears in the *Flora of Somerset*.

**361. R. agrestis Savi.** *R. sepium* Thuill. *R. inodora* Fr. *Small-leaved Sweet Briar*.

Native; on open bushy ground and roadsides near the coast of North Somerset; very rare. June and July.

**S.** Three bushes on the southern slope of Cadbury Camp! *Miss Livett*. Clevedon; *Mrs. Lainson*. Woods at Brean Down; Woods in *Baker's Monograph*. One bush still there in 1895; *Mrs. Gregory*. It is probable that the southern slopes of Brean Down were wooded up to a comparatively recent date. At the present time only a few stumps and low bushes remain. By the roadside on Dyer's Hill, Ashcombe, near Weston-super-Mare; first noticed by Mr. D. Fry in 1884. There were three bushes there in 1892. These were destroyed soon afterwards when the hedge was replaced by a stone wall. *Mrs. Gregory* tells me, however, that the rose exists in some other spots near the town; notably about the encampment on Worlebury Hill, where she has found several bushes. Along the edge of a low cliff at St. Thomas' Head near Woodspring Priory: in some quantity 30 years ago, but the sea has encroached and some of the ground has since fallen away. "One bush on limestone at Uphill, with leaves less narrowed at the base than in the Surrey and Kent plants; and fruit nearly globose, so it does not seem to fit *R. inodora* Fr., which Crépin indeed did not admit to be British," Sept. 1906; *Rev. E. S. Marshall*. This bush of Mr. Marshall's will probably be the same form as that found within a short distance on Brean Down, by Woods and *Mrs. Gregory*. The fruit of all our plants is roundish—slightly ovoid.

This rose has also been reported from the Castle Hill, Clevedon; but possibly in error for *R. micrantha*, a specimen of which stands for "*inodora*" in the Stephens Herbarium.

The plant from St. Thomas' Head has been much discussed. When I first gathered it and consulted Mr. Briggs he was greatly interested and said it was "really no other" than the naked-peduncled variety of *R. micrantha* discovered by him in the neighbourhood of Plymouth some years before, and which Mr. Baker had named *Briggsii* in his honour. To this opinion Mr. Briggs continued to adhere when he saw other specimens from the same spot that I distributed in later years. Meanwhile Mr. Baker had named it simply "*R. sepium*"; and in 1888 Prof. Crépin wrote:—"Si je vois bien, ce n'est pas une var. du *R. micrantha* mais simplement une variation du *R. agrestis* Savi, (= *R. sepium* Thuill.)." There can be no doubt that the latter determinations are correct. The *VAR. Briggsii* of *micrantha* is characterized by its pedicels, receptacles, and backs of the sepals being completely eglandular; thus resembling *agrestis* rather closely. Plymouth remains the only British station for the true plant. Mr. Briggs speaks of its having come true from seed.

Specimens from Miss Livett's bushes on Cadbury Camp were reported on by Major Wolley Dod as follows:—"These may be called *R. sepium*, but are

rather larger in the foliage, have their styles more hairy, and their leaflets are pubescent beneath; all which characters indicate a passage towards *R. inodora* Fries."

**362. *R. Borreri* Woods.** (aggr.)

Native; in hedges and thickets; rare.

July.

VAR. **tomentella** Leman.

**G.** Gully on the Downs, 1867; *Herb. St. Brody*. Charlton. Charfield. Nibley Knoll.

**S.** A plant with glandular peduncles = ? *decipiens* Dumort. has been gathered in the Locking Road, Weston-super-Mare, by Mrs. Gregory.

VAR. **arvatica** Baker.

**G.** Hedges near Dursley, July, 1867, named by Mr. J. G. Baker; *Herb. St. Brody*. Quarry and field hedge near Damery Bridge; *C. Bucknall*.

**S.** Near Lock's Mills in Bedminster Meads. Knowle, 1882. Between Knowle and Brislington. In field hedges near Flax Bourton. Hedge between Yatton and Cleeve.

Mr. J. G. Baker intended this variety to correspond with the *R. arvatica* of Puget, a French botanist; but neither his specimens nor description can apply to Puget's species as he meant them to do.—*Wolley Dod*.

**363. *R. canina* L.** Dog-rose. Old Engl.—“*Hep-tree*.”

Native; in hedges and bushy places; as an aggregate abundant throughout the district. June and July.

VAR. **lutetiana** Leman.

Common and generally distributed.

VAR. **dumalis** Bechst.

Common. Very prevalent in some parts of the area. This form, with the last, and their intermediates which are very frequent, are estimated to constitute 90 per cent of our rose flora.

On a *dumalis* from near Hillsley, G. (*C. Bucknall*) Major Wolley Dod remarked:—“This comes nearest to *R. brachypoda* Déségl. & Ripart, which is little else than a short-peduncled form of *dumalis*; but the sub-species and varieties of this affinity are extremely puzzling. Even specimens authentically named seem to combine the characteristics of several!”

Another gathering of Mr. Bucknall's from Warleigh Common, near Bath, was referred by the same authority to *R. insignis* Déségl. & Ripart.

VAR. **senticosa** Ach.

Has small leaves, their teeth long-acuminate and remarkably directed forward; and round fruit.

**G.** Clifton Down. Hillside near Hillsley; *C. Bucknall*.

**S.** Pensford; *C. Bucknall*. Near Sidcot; *W. F. Miller* in *Fl. Som*.



VAR. *sphaerica* Grenier,

**G.** Field hedge, Combe Glen, Westbury-on-Trym ! *Miss Roper*.

**S.** Leigh Wood, near the Police Station ; *C. Bucknall*. Hedge near Sidcot ; *W. F. Miller* ; and fields on Lansdown towards Bath ; *W. M. Rogers* ; both in *Fl. Som.*

VAR. *biserrata* Mérat.

**S.** Walton Hill, Clevedon. Warleigh Common in two places ; *R. P. Murray*. Midford Hill near Bath ; *W. M. Rogers* in *Fl. Som.*

VAR. *andegavensis* Bastard.

**G.** Between Charfield and Damery Bridge ; *C. Bucknall*.

**S.** Hedge in Bedminster Meads, 1882 to 1900. Knowle. Stockwood Lane. Hedge on the Avon bank, opposite Old Sneyd Park ; ("good")—*J. G. Baker*. Lane between Cheddar and Axbridge ; *J. G. Baker* in *Fl. Som.* Sparingly near "Fairleigh," Weston-super-Mare ! *Mrs. Gregory*. Roadside on Smitham Hill, East Harptree.

VAR. *verticillacantha* Mérat.

**G.** Roadside N. W. of Charfield.

**S.** Bedminster. Near Kewstoke Gate. Hutton ; the Locking Road ; and woods at Weston-super-Mare ! *Mrs. Gregory*.

VAR. *aspernata* Déségl.

**G.** Roadside at Aust. Hedge by the field-path between Thornbury and Aust. Lane between Lyde Green and the Westerleigh Road. Between Charfield and Damery.

**S.** Two or three bushes in a lane near Ursleigh Hill ; noted by Mr. Fry, who says that the form appears to be the same as that referred to by Dr. Syme in *Engl. Bot.*, as having been found in Somerset by the late Mr. T. Clark. Sidcot ; *Mrs. Gregory*. Weston-super-Mare ; *Woods* ! in *Baker's Monogr.* Warleigh Common ; *W. M. Rogers*. Butleigh Hill ; *Fl. Som.*

VAR. *vinacea* Baker.

**S.** Locking Road, Weston-super-Mare ! *Mrs. Gregory*.

364. *R. dumetorum* Thuill.

Native ; in hedges and thickets. As an aggregate this group is common and well distributed. June and July.

**G.** Green lane in Filton Meads. Wood border between Patchway and Almondsbury ! *Miss Roper*. Hedges near Dursley ; *St. Brody* in *Journ. Bot.* 1866, p. 122. Roadside hedge between Rangeworthy and Hall End.

**S.** Portbury ; *C. Bucknall*. Portishead ! *Mrs. Gregory*. Bourton Combe. Canal bank at Radford ; *C. Bucknall*. Burrington Combe.

VAR. *obtusifolia* Desvaur.

**G.** St. Vincent's Rocks, between the Bridge and the Zigzag! 1885 to 1909. First gathered in Britain by Dr. St. Brody on St. Vincent's Rocks and near Berkeley; *Baker* in *Journ. Bot.* viii, p. 79. Specimen from St. Vincent's Rocks, 1867, in *Herb. St. Brody*. Yate Common; pointed out by the Rev. W. Moyle Rogers.

**S.** Bedminster Meads near Lock's Mills; fide *Baker*. Near Weston-super-Mare; *W. F. Miller* fide *Rogers*.

VAR. *urbica* Leman.

Rather common in hedgerows and on bushy ground both in West Gloucester and North Somerset. There were several fine bushes in the "Green Valley," Clifton Down, some years ago before the undergrowth was cleared away, and a little still remains.

VAR. *frondosa* Baker.

**G.** Hedge between Stoke Gifford and Winterbourne.

**S.** Locking Road, Weston-super-Mare! *Mrs. Gregory*.

VAR. *collina* Jacq.

**S.** Crox Top, Bishopsworth, 1882; *Rev. W. H. Painter*. Lane between Whitchurch and Woollard, 1902. A very handsome large-flowered rose that is abundant at 660 ft. on Potter's Hill above Barrow Gurney, has been so named by me in *Journ. Bot.* 1903, p. 55. I fear, however, that the occurrence of this variety in the district is nevertheless doubtful. Several plants can be mistaken for it, and it is likely that one or more of our records will prove to refer to forms of *R. systyla*. Some botanists doubt if *collina* be really British, although it and its hybrids are frequent on the Continent. But the name appears in our latest *Catalogue*. All British specimens of the closely allied *R. Kosinciana* Besser (treated as synonymous with *collina* in my first edition; in *Baker's Monograph*; and in *Fl. Som.*) were unhesitatingly rejected by Prof. Crépin, who put them in the group of *verticillacantha*. According to him *Kosinciana* is a hybrid of *R. gallica* with another species. Major Wolley Dod, in his recent *Review of the eu-caninæ*, concludes that "*R. Kosinciana* auct. angl. is certainly not Besser's species. . . . There is so much variation in British specimens so labelled that I am unable to say what *Kosinciana* is."

VAR. *cæsia* Sm.

**S.** Woods, Weston-super-Mare! *Mrs. Gregory*.

365. *R. glauca* Villars. (aggr.)

Native; in hedges and bushy places; rare.

June and July.

VAR. *Reuteri* Godet. (with *Crépiniana* Déségl.)

**G.** Black Rock Gully, Durdham Down; *T. B. Flower* fide *Baker*.



**S.** Crox Top near Bishopsworth; *Rev. W. H. Painter*. Abundant in the wood at Weston-super-Mare; *Mrs. Gregory* fide *Baker*.

VAR. **subcristata** *Baker*.

**S.** Knowle; *Rev. W. H. Painter*. Near Wells; and in a lane by Wookey Hole (uncharacteristic); *J. G. Baker*; both in *Fl. Som.* Fields between Bath and the top of Lansdown Hill; *Rev. W. M. Rogers* in *Fl. Som.*

**366. R. stylosa** *Desvieux*=*R. systyla* *Bastard* and *Woods*. *Columnar-styled Dog-rose*.

Native; in hedges and thickets, and on ditchbanks in the marshlands. Common. June and July.

**G.** St. Vincent's Rocks. Bank of Avon near Sea Mills. Field hedge, Horfield. Near Filton; *C. Bucknall*. Hedges between Filton and Brentry. Roadside near Aust. Some fine bushes at Calebs by Northwoods. Elberton. Between Almondsbury and Tockington. Roadside hedge near the church at Wapley.

**S.** Near Lock's Mills, Bedminster. Many bushes on a piece of furzy common by the G. W. R., south of Long Ashton. By the Land-Yeo stream below Flax Bourton. Yanley Lane. Bishport Wood; *A. Prichard* in *Swete*. Portbury. Weston-in-Gordano. Frequent between Stockwood and Whitchurch, and from the latter village to Pensford. In hedges at Ursleigh Hill, Stanton Drew, and between Chew Magna and Bishop Sutton; also frequent on the roadside between Chew Magna and Winford; *D. Fry*. Featherbed Lane, between Stanton Drew and Clutton. Norton Malreward. Very abundant in roadside hedges from Norton Hautville to Chew Magna; apparently there, as in many other localities in the neighbourhood, the prevailing species; *D. Fry*. Plentiful in the lanes leading up to Dundry from the Chew valley, and in hedges of adjoining fields. Plentiful about Burnet Hill, where of twelve rose bushes examined eight were of this species; *D. Fry*. Very abundant in the lowlands from Yatton to Clevedon and Weston-super-Mare; in some places forming quite half of the rose flora. Luxuriant specimens of this lowland rose were submitted to Prof. Crépin, who remarked—"C'est une var. du *R. stylosa* voisine du *R. rusticana* Déségl." On the high ground between the Court Hill, Clevedon, and Cadbury Camp; *Miss Livett*. Winscombe. Cheddar. Green lane above Draycott; and on the descent from the Mineries towards Wells. Wedmore. Hampton Rocks, Bath; *Miss Livett*. Wood near Midford, Bath; *C. Bucknall*.

Many of the more luxuriant plants, especially in wet places, have the columns of styles but little or not at all protruded; and in this way show some agreement with descriptions of *R. collina* Jacq. The most characteristic or typical examples are to be had in dry situations. A white-flowered rose on St. Vincent's Rocks opposite Sion Hill, and some in Filton Meads, may possibly be the rare type of *stylosa*.

A *systyla* rose with eglandular peduncles from a field hedge near Filton

(*Bucknall*) is queried by Major Wolley Dod :—" An *R. chlorantha* S. & M., aut *R. parvula* S. & M. ? "

The dull glaucous bloom often present on the fruits of this rose contrasts strongly with the brilliant gloss on those of *canina*, and then marks the species.

VAR. *pseudo-rusticana* *Crépin*.

S. Boggy field under Lansdown ! *Miss Roper*.

### 367. *R. arvensis* *Huds.* *White-flowered trailing Rose.*

Native ; in hedges and thickets. Common nearly everywhere in the wooded and enclosed portions of the district. June to August.

In some West Gloucestershire hedges under shelter of the Cotswolds this rose occurs in extraordinary profusion and luxuriance. In cold shaded situations bushes are often found with old fruit persistent until the next summer. These appear to have dried before reaching maturity.

The VAR. *bibracteata* (as interpreted by Baker) is on record as follows :—

S. Kelston valley ; *J. G. Baker*. Lane near " The Court," Winscombe ; *W. F. Miller*. Valley near Axbridge ; *G. C. Druce*. Wells ; *Miss Livett*.

But it was pointed out some years ago by Prof. *Crépin* that the true plant is a non-British hybrid. Our so-called "*bibracteata*" is really but a slight variation or luxuriant " state"—hardly worth distinguishing. The name is now dropped from the *London Catalogue*.

I have sometimes noticed, late in November, when all rose-fruits presumably should be equally ripe, that the hips of *arvensis* are eaten by birds while the larger and handsomer fruits of other species remain untouched, although the bushes may intermingle. This, I think, shows that those of *arvensis* really mature earlier, rather than that birds have a preference for one fruit over the other.

The curious crimson-tinted flossy tufts often found upon wild roses are morbid growths akin to galls, and are produced by the puncture of an insect when depositing its eggs.

## CRATÆGUS *Linn.*

### 368. *C. oxyacantha* *L.* *C. oxyacanthoides* *Thuillier.* *Two- or three-styled Hawthorn.*

Native ; extremely rare. It has been often looked for, but was never found to my knowledge until *Miss Livett*, in 1909, detected two trees on Tickenham Moor, S. This scarcity in the West Country is remarkable in view of its frequency in Eastern England. While many stations are reported for it in Kent, Surrey and Middlesex, I find no mention of the plant in the Somerset, Dorset and Plymouth lists ; and two bushes only appear to be known in Herefordshire.

Although so seldom met with, this rarity has hitherto been treated as the typical Hawthorn, on account of its happening to represent the group in the Linnean Herbarium. It is described and figured with foliage widely differing



from that of the common thorn, and is said by some to be a tree of very distinct appearance. The foliage of Hawthorns in general shows great variation in leaf-outline; and Miss Livett points out that although in dried specimens these differences seem quite trivial, yet they are often sufficient to give a distinct aspect to the respective trees. The leaves of her *oxyacanthoides* near Tickenham show no marked peculiarity in shape. Those of one bush, however, approach more nearly to the *Engl. Bot.* figure than do those of the other. In Surrey, too, I understand there is no striking feature of that kind.

I am following Dr. Focke, the German expert in *Rosacææ*, in treating the two chief forms of this aggregate as being specifically distinct. He says that hybrids between them are generally distributed in the hedgerows and plantations of Northern and Central Germany. If this be correct, and we have such hybrids in this country—fertile as in Germany and therefore presumably crossed more or less repeatedly by one or other of the parents—then much of the difficulty experienced by British botanists in accounting for so many intermediate forms with varying characters will be removed.

There are in this district (on Pur Down for instance) a number of trees with glabrous pedicels, and one on Leigh Down, now destroyed, was entirely glabrous; all so far favouring *oxyacanthoides*. The Leigh tree was one of the last to bloom in 1881, a year that will be long remembered for abundant blossom on the May trees.

### 369. *C. monogyna* Jacq. Hawthorn. May. Whitethorn.

*Hææg-thorn* in Anglo-Saxon = hedge-thorn, showing that its use for fencing is of great antiquity. In West Somerset the name survives as “hag-thorn” (*Fl. Som.*). In France, Spain and Italy the name equals “Whitethorn” as with us.

Native; in woods and hedges, and on downs; very common. May and June.

Miss Livett's observations do not support Babington's statement that *monogyna* is a late flowerer. On the contrary she finds that its fruit is ripened decidedly early; and I see that Dr. Arnold Lees, in the *Flora of West Yorks.*, says that with him the common thorns flower a fortnight earlier than *oxyacanthoides*. My own notes on the intermediates above mentioned tend to confirm this.

VAR. *splendens* Druce.

**S.** One tree on the low cliff towards Walton-by-Clevedon! Miss Livett. Another in the wild woodland of Chelvey Batch.

A most handsome form, with fruit about four times heavier than that of the type. Six ripe fruits weighed seven grammes, while six ordinary haws of average size were under two grammes. The measured dimensions averaged 15 mm. by 12 mm., against 9 by 8 in type *monogyna*. Mr. Druce agrees to the naming.

It is odd to see Whitethorn boughs bending down under the weight of haws just as those of orchard trees often do when apple crops are good.

Doubtless this is the *Oxyacanthus folio et fructu majore*, from Oxfordshire, in

Merret's *Pinax* (1667); and the *Oxyacantha vulgaris pomo majore* found by Sherard in Northamptonshire.—*Ray, Syn.* ed. 3, p. 454 (1724).

There appears to be no Hawthorn in France to match our *splendens* save the var. *Mauriannensis* Didier, known only in Savoy at one spot. By a typographic error MM. Rouy et Foucaud are made to say of this:—"fruits gros, ovales-oblongs, 12-25 centim. de long sur 9-10 de large." A ten-inch haw would indeed be sensational.

It was by unquestioned good fortune that our trees of this variety were noticed at the right season—in 1909—when they, in common with most other Hawthorns, overbloomed themselves. Only a small handful of flowers, on the topmost branches, came out in 1910; with, of course, a corresponding failure of fruit in that year.

The occurrence or otherwise of frosts and storms in Spring, and more especially the temperature of April, have great influence on the aspect of May flowers. In successive years there may be a very considerable difference both in the time and the amount of flowering of the Hawthorn, according to the mildness or severity of the preceding weather. In a favourable season when bloom is profuse the view to be had from the Observatory Hill, looking northward over our Downs dotted with masses of pearl and silver, will yield to few in beauty. The praise of such a scene has been sung by almost every poet, scarcely one omitting to take up the theme of the fragrant "May." Still, for size and elegance the Downs trees do not compare with those protected by enclosure. Some at Ashton Court are perfect in their shapeliness. On the other hand there are Hawthorns on Steep Holm that have been stunted by exposure to less than a foot in height.

The trunk of a very old tree often becomes divided into several subordinate parts, quite separate from each other save where they meet at the butt of the bole, and having the appearance of so many distinct trees. "Hawthorns sometimes appear as if in clumps, their boles divided and multiplied, which is a sign of extreme old age. In the "bottoms" of the Cotswolds, as they are termed, numerous many-boled hawthorns may yet be seen, some of them singularly twisted and remarkably tortuous. A very curious one of this kind has twelve boles spreading out from the base."—*Edwin Lees*. This division comes about through the slow formation, by irregular growth of woody bundles on the circumference, of columnar projections with intervening deep channels on the face of the trunk. As the tree reaches old age, decay, commencing at the heart-wood, proceeds gradually outwards until the whole of the (original) cylindrical part of the stem is destroyed; and when this point is reached all living communication is, of course, at an end between the several ribs or segmental portions. These, now distinct from each other except at the root, are drawn asunder by the weight and leverage of branches and foliage, and continue their existence as if separate plants.\* The wildly grotesque features of ancient olive-trees have probably been acquired by a similar, if more lengthy, process. Olive-yards exist, at least in Majorca, with a known history of close

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\* See an article on this subject by the Rev. W. H. Purchas in *Journ. Bot.* 1865.



upon a thousand years (the farmers date them from the Deluge), and trees so old have naturally developed eccentricities more pronounced than any we may see among our hawthorns.

The "Holy Thorn" of Glastonbury which, according to legend, sprang from the staff of Joseph of Arimathea when a missionary in Britain, was for centuries an object of veneration and of pilgrimage. It had the singular habit of often blooming a second time about Christmas-tide. This habit is shared by its descendants, raised from seed or cuttings, that have been well distributed. One of these stands amid the Abbey ruins; another in the garden of All Saints, Clifton; and a third in Richmond Park Road; while others have been carried far and wide. "One was cut down only a few years since in the parish of Baltonsborough by a farmer who objected to some slight acts of trespassing on the part of visitors."—*Fl. Som.* "Cadbury Hill, the site of another ancient British camp, . . . is remarkable, like the famous Glastonbury Hill, for Winter-flowering Hawthorns."—*Theo. Compton.* A tree near Ipswich blooming 14 Nov. 1885; and a second at Evesham in flower 26 Nov. 1899; are mentioned in *Science Gossip*.

To all appearance this is merely an ordinary *C. monogyna*. No character, other than the abnormal leafage and flowering, that might distinguish it as a botanical variety, can be discerned. It appears in nurserymen's catalogues as *C. oxyacantha, præcox*.

The following quotations from old authors may be of interest.

"In Summersetshyre about six myles from Welles, in ye parke of Glassenbury there is an hawthorne which is grene all the wynter, as all they that dwell there about do stedfastly holde."—*Turner, Herb.* ii, p. 73 bis (1562).

"We have in the west of Englande a white Thorne growing at a place called Glastenburie, which bringeth foorth his flowers about Christmas, by the report of divers of good credite, who have seene the same."—*Gerard*, p. 1145 (1597).

"We have another sort of Hawthorne growing in divers places of our Land well knowne to those that dwell about the places where they grow, yet not greatly regarded or wondered at by them, . . . but I doe not thinke fit that it should be so slightly passed over or so smally respected; for I suppose it a strange worke of nature, or of the God of nature rather, to cause such a tree being in all parts thereof like unto the common Hawthorne to blossome twice every yeare, the one time usually in *May*, the other about Christmas, eyther somewhat before or somewhat after, according to the temperature of the Winter at that time . . . It beareth also after these flowers are past, greene berries, so that it will have both ripe fruit and greene at one and the same time upon the tree. There hath not been observed any other difference betweene this kind and the ordinary Hawthorne. Some might thinke as it hath been disputed among divers that this happeneth by reason of some hot springes that take their course by the rootes of this tree, which reason I grant hath some appearance of likelihood; but wisely scanned and considered is too light I thinke to hold weight, for how should one tree only blossome at a place and none of all the other trees in the same tract or compasse? . . . There are of these last trees in divers places of the Land, as at *Glastenbury Abbey*; in *High*

street or Whey street in Rumney Marsh; and neare unto Nantwich also, in Cheshire."—*Parkinson, Theatr.* p. 1025 (1640).

"It does not grow within the ruins of the abbey at Glastonbury, but in a lane beyond the church-yard on the other side of the street by the side of a pit. It appears to be a very old tree. An old woman of 90 never remembers it otherwise than as it now appears. There is another tree of the same kind 2 or 3 miles from Glastonbury. They tell you it has no thorns but that I found to be a mistake. It blossoms twice a year; the winter blossoms which are about the size of a sixpence appear about Christmas, and sooner if the winter be severe. These produce no fruit. The berries contain only one seed, and there seemed to have been only one pistil, but it was late in the season when I examined it. Probably the tree which gave birth to the legend grew within the walls of the abbey and may have died from age, or been destroyed at the time of the Reformation."—*Withering, Arr. Brit. Pl.* ed. iii, p. 459 (circa 1793).

Some very handsome species of this genus have been planted in various spots. One, on the Downs near Sea Walls, bears attractive, apple-like fruit: another, with nearly entire leaves and strong thorns, has been gathered in a hedgerow by Mrs. Gordon, and in a coppice near Leap Bridge by Mr. Samson.

[*Cotoneaster microphylla* *Wallich*.

Alien. A garden shrub, evidently becoming established in this country. Frequent on the limestone hills of the district.

G. Clifton Down near the Zoological Gardens! The "Gully" near Sea Walls!

S. A bush on a slope of Nightingale Valley, Leigh Woods; *F. Samson*. But this may prove to be *C. Simonsii*, one of the shrubs used in planting coverts. Strawberry Hill, Clevedon. The Roman encampment, Weston-super-Mare. A couple of ancient bushes grow from chinks in exposed rock above the Battleaxes Inn, Wraxall; certainly not planted and quite possibly in being before the neighbouring houses were built. Several bushes among furze etc. in an open warren near the top of West Hill, Wraxall. These are likewise of considerable age. Several on a limestone outcrop on Tickenham Hill. A gnarled old bush on Hampton Rocks near Bath! *Miss Peck*. Several in a lane at Fortnight. Brean Down, whence it was sent to Kew in 1892. "If it has held its own on that exposed and wind-swept promontory, it will survive as a relic of garden culture in other places. It is a native of the Himalayas,"—*S. T. Dunn*. Planted many years ago in a wood at Chelynch, Doultling; and now abundant there.

Most of the bushes are of great age and evidently were not planted. It is probable that the seeds have been conveyed by birds. The shrub is on record also from Rodborough and Minchinhampton Commons, and Tutshill, West Glouc.; from Carnarvonshire; and from several spots in Cornwall.]

## MESPILUS *Linn.*

### 370. *M. germanica* *L.* *Medlar*.

Alien or possibly denizen. Very rare and local.

May.

G. In Westridge Wood, Wotton-under-Edge, perhaps planted; *V. R. Perkins*.

S. On the under-cliff at Clevedon, pointed out to me in 1879 by Mrs. Lainson and Mr. W. E. Green. Still there, 1906, in good state. Only a single tree, but growing in a situation where it was certainly never planted. A large bush (spinous) on the left bank of the Chew, a short distance above the viaduct at Pensford. Not planted there, although the adjacent ground is cultivated. Another tree, which I have not seen; is reported from the Nightingale Valley Woods, near Weston-in-Gordano.



**PYRUS** *Linn.***371. P. communis** *L.* *Wild Pear-tree.*

Denizen ; very rare.

April and May.

**G.** A tree by the roadside under Clifton Down, near the bottom of the Bridge Valley, in fruit 1909. Cook's Folly Wood, 1849 ; *Herb. Cundall*. A tree, six feet high and fruiting in 1911, is growing on an old wall which marks the boundary between the Manor Park and the Canowie estates, Redland Hill. A very old tree standing alone in a pasture on Stoke Abbey Farm ; *Miss Roper*. A tall tree in a pasture hedge between Filton and Stoke Gifford, fruiting in 1909 ; *C. Bucknall*. By a stream in low ground near Shirehampton, 1880 ; *T. W. Jacques*. Stapleton ; *Herb. Stephens*. A small tree by the roadside between Westerleigh and Yate.

**S.** A tree (30 feet) by the brook at the bottom of Bishport Wood : no fruit in 1881, a good fruiting year. One in a pasture on Belmont Hill. One in the wood above Weston-in-Gordano. A small tree below the quarry at Hartcliff Rocks near Winford. An old stunted tree growing out of the low limestone cliff on the coast at St. Thomas' Head, 1888 ; still there in 1907. A tree (20 feet) on the bank of a stream running through meadow-land near Woodspring Priory ; full of fruit in 1881 and in some subsequent years down to 1907. Near the rocks, Batheaston (most likely accidental) ; *C. E. Broome*. Standerwick and Beckington ; *H. F. Parsons* in *Fl. Som.*

It is likely that all these have sprung from pips of cultivated pears unintentionally sown. I have never met with, in our woods, the apparently aboriginal wild pear that grows in the valley of the Wye near Chepstow and Symonds Yat ; and so might be expected to occur on the same formation in this district, which lies more or less on the way to its southern stations near Plymouth.

**372. P. Malus** *L.* *Crab-tree.*

Native ; in woods and hedgerows ; common.

May.

**VAR. a. P. acerba** *DC.*

Young branches, leaves, pedicels and calyx-tubes sub-glabrous. Fruit small, not longer than its stalk. The native Crab.

**G.** A tree growing out of the pennant cliff above the Frome (left bank) near Fishponds. Several on Ivory Hill ; *C. Bucknall*. Many in field-hedges between Wapley and Codrington. Old Down, Tockington ; *Miss Roper*.

**S.** Laneside between Barrow Gurney and Dundry. Stanton Drew ; *D. Fry*. Two trees on Nailsea Moor towards Clevedon. Skirt of Portishead Wood. Hallatrow ; *C. Bucknall*. Hedge near the top of Lansdown.

This is the really wild Crab-tree ; distinct from the progeny of cultivated apples. I believe that, if carefully looked for, this will prove to be more common than is generally supposed or than these records indicate.

**VAR. b. mitis** *Wallroth.*

Whole plant more woolly. Leaves and fruit larger, on shorter stalks. " This plant is, no doubt, the original stock of all the cultivated apples which have

shortly-stalked fruit." *Engl. Bot.* But most, if not all, of the trees we now find in the wild state have been derived from seeds of orchard apples.

**G.** Hedges in the lowlands between Lawrence Weston and the Severn. Wood border by Pur Down near Stoke House. Between Henbury and Cribb's Causeway. At the back of Horfield towards Filton Station. Laneside between Filton and Brentry, and in a field-hedge near the latter hamlet. Several trees near the Avon below Hanham. Northwoods. Frampton Cotterell.

**S.** Leigh Woods, in several spots. Many fine trees in field-hedges between Long Ashton and Dundry. Several by the G.W.R. between Brislington and Keynsham. Several about Keynsham and Pensford; and in a wood between Stanton Drew and Norton Malreward. Frequent in hedges about Nailsea Moor. A number of large trees on both sides of the road from Portishead, half a mile or so south of Weston-in-Gordano; also in the woods above and the moorland below.

It is said that these large hedgerow trees are the survivors of many that were planted at a time when crab-fruit was much used in dyeing.\*

Only the principal or more conspicuous localities are given above.

### 373. *P. Aucuparia* Ehrh. *Rowan. Mountain-ash.*

Native; in woods, rocky hills and, exceptionally, a boggy alder holt. Rather rare and local. May and June.

**G.** Plentiful in a wood by the Avon above Conham, close to the old Spelter Works. Wood near Stapleton; *T. B. Flower*. Wood at Frenchay; *H. J. Wadlow*. Edge of a quarry in Oldbury Park; *Miss Roper*. Wyck Rocks, and the Boyd valley below Wyck.

**S.** Leigh Woods, chiefly small trees on rocks near the Avon opposite Sea Mills. Clevedon; *W. E. Green*. Brockley Combe. Sparingly on the Yatton or Rhodyate Hill side of King's Wood; but plentiful nearer Congresbury in Col. Long's Woods. Max Bog, Wincombe. Cliffs in Cheddar Gorge. Worlebury Wood; *T. F. Perkins*. Eaker Hill Wood near Chewton Mendip; *Miss Roper*. Downhead, and Asham Woods; *Miss Livett*. Hinton Wood; *Dr. Davis* in *Fl. Bathon*.

A favourite tree for planting, but certainly indigenous in most of our localities.

#### [*P. pinnatifida* Ehrh. *P. semipinnata* Roth. = *P. Aucuparia* × *Aria*?

A tree with leaves bluntly lobed above and pinnate below, which is cultivated in shrubberies and ornamental plantations, but not commonly; and has no claim to be considered a native of Britain. The only local example known to me stands in front of Buckingham Chapel, Queen's Road, Clifton. Being formerly a good deal confused with *fennica*, *scandica* and *latifolia*, one cannot always tell what the older writers had in view when they mentioned *P. pinnatifida*. Specimens from both Gloucestershire and Somerset are cited in *Engl. Bot. Suppl.* by Mr. N. E.

\* "A NEW USE FOR APPLES. We are threatened with a cider famine, not from the failure of the apples, although a partial crop, but because they are likely to be applied to a more profitable purpose (so far as the growers are concerned) than in making a household beverage. It seems that the Manchester calico dyers and printers have discovered that apple juices supply a desideratum long wanted in making fast colours for their printed cottons; and numbers have been into Devonshire and the lower parts of Somersetshire buying up all the apples they can get, and giving such a price for them as in the dearest years hitherto known has not been offered. . . . There can be no doubt that the discovery will create quite a revolution in the apple trade." —From the "Times," September 30, 1861.



Brown. "*Pyrus pinnatifida*" was recorded from Leigh Woods in 1828 by Rootsey, and in a MS. list of Bristol plants written at about the same date—possibly by the same hand. "Near Bristol"; *Worsley Cat.* in *New B. G.* (1835). "Leigh Woods, frequent;" *Sweet, Fl.* Mr. Flower told me that he once saw it in Leigh Woods. I found a specimen in a local collection made by a Clifton student in 1842; and another was gathered in Leigh Wood by Mr. W. E. Green about 1874. Mr. Green could not find his way to the tree a second time, nor have other botanists been able to discover it. I can only hazard a guess that the true plant may have stood on the skirt of Leigh Court shrubberies where they merge into the wild wood; while some of the records may relate to *P. latifolia*. In *Topogr. Bot.* West Gloucester is credited with "*Pyrus feminea*" on the authority of "Sandys sp ?"]

### 374. *P. intermedia* Ehrh.

Native; on limestone; very rare.

May.

**S.** Cheddar Gorge. Discovered by the Rev. Augustin Ley in September, 1901. Previously unknown in the county. There are at least two large bushes accessible on the high cliffs, and several smaller ones in the upper part of the Gorge.

"But the plant we have been calling *intermedia* in Britain is about to be described by Prof. Hedlund under another name, as a sub-species very close to *Sorbus Mongeoti* Soy et Godron."—*Rev. A. Ley*. Mr. Ley remarked that the leaves of Cheddar specimens have greyer felt than is usual with *P. intermedia*. And he told me further that we have in Leigh Woods a plant very near to *intermedia* but not quite it, "on the margin of that species towards *P. Aria*."

I am fain to confess that the relations of these Pyri in the *Aria* section are terribly intricate, passing the wit of many to disentangle.

### 375. *P. Aria* Ehrh. *White Beam*.

Native; in rocky woods, and on naked crags both of limestone and oolite. Occasionally in the Mendip hedges, and there possibly planted or it may be bird-sown. Locally common.

May.

**G.** St. Vincent's Rocks, and along the verge of the Avon Gorge. Wyck Rocks. Blaize Castle. Woods above Wotton-under-Edge, in several places.

**S.** Plentiful in Leigh Woods along the course of the Avon, and on rocks of the valleys that run up from the riverside. Bourton Combe. Backwell Hill. Brockley. Cleeve. Tickenham Hill. Court Hill, Castle Hill, etc., Clevedon. Low cliff towards the Nore near Portishead. About the hilly woodland near Yatton and Congresbury. Worle Hill. Brean Down. Common on exposed rock in the combs and on the flanks of Mendip. Hedges about Sidcot, Shipham, Leigh-on-Mendip etc. Asham Woods; *Fl. Som.* Hampton Rocks and Combe Hay; *A. E. Burr*. Rocks above Bathford and also in hedges, not infrequent; *Fl. Bathon*.

Prof. Hedlund writes to Mr. Ley (Dec. 1909) that he has not seen "*P. Aria sensu stricto*" from Britain. The numerous forms of the tree, varying often in leaf-texture and outline, that occur on our limestone hills are therefore to be taken as the species *sensu latiore*.

VAR. *incisa* Reichb.

**G.** Woods, Wotton-under-Edge; *Rev. H. J. Riddelsdell* in *Journ. Bot.* 1911.

**S.** Cheddar Gorge, two trees! *Rev. A. Ley*. Limestone rocks at the Kew-stoke end of Weston Hill! *Rev. E. S. Marshall*. All confirmed by Prof. Hedlund.

The influence of temperature and weather-conditions on Spring-flowering trees (see Hawthorn) is well shown by this species. In successive years there is a very considerable difference in the amount of blossom borne by the White Beams, and their appearance at the time of flowering varies accordingly. In 1877 the trees on the cliffs of Nightingale Valley flowered splendidly. In the three following seasons there was scarcely a corymb to be seen; and indeed in one of those years it was with difficulty that a good herbarium specimen could be found. But in 1881, when every kind of tree flowered most abundantly, *Pyrus Aria* seemed to excel them all, and shone forth once more in maximum beauty, the silvery foliage of the older trees being almost hidden by masses of inflorescence. The year 1905 was an excellent season in this respect for the Pyri, while 1906 was as decidedly bad.

### 376. *P. rupicola* Syme.

Native; on limestone in the same situations as the last species, but quite rare. May.

**S.** Leigh Wood; *Herb. Flower*. Sandford Hill, and Callow Rocks near Sidcot! *D. Fry*. A large tree in Burrington Combe was said by Mr. Ley to be well marked and characteristic. Cheddar Gorge.

Dr. Syme had much hesitation in separating this from *P. Aria*, even as a "sub-species," on account of connecting forms that pass insensibly into each other, although the extremes may be far enough apart. But I follow the Editors of the *Manual*, who regard *rupicola* as specifically distinct; and Mr. Ley gave the plant a separate number in the *Flora of Herefordshire*.

### 377. *P. latifolia* Syme. *P. rotundifolia* Bechst. non Moench. (*P. scandica* Bab. in my "Additions," pub. 1885.)

Native; in rocky woods; very rare. May and early June.

**G.** A very old tree with several boles overhangs some steep rocks on a thickly wooded slope of Clifton Down. Its presence was unsuspected until Sept. 1909, and then the discovery was due to my finding a sprig with leaf and fruit lying loose on the turf of the "Green Valley." Believing it most unlikely to have been brought there from the Somerset side of the Avon, I instigated a search through the overgrown rocky ground near at hand, and there Miss Roper found this tree. Scrambling boys had been gathering and scattering the berries. Not a single flower could be seen on this tree in 1910, so here again chance had much to do with its discovery in a good fruiting year. Symonds Yat in the Wye Valley is the only other locality for *P. latifolia* in Gloucestershire.

**S.** Nightingale Valley and the adjacent portion of Leigh Woods. First recorded by Miss Atwood in Swete's *Flora* as "*P. Aria*  $\gamma$  *intermedia* Ehrh. Leigh Woods, growing with *P. Aria* on the summit of Nightingale Valley." For many years these two or three trees were the only ones known in the district. In 1901 the Rev. Augustin Ley wrote me that he had discovered four or five others—some merely coppice bushes, but one a fine example of 30 feet or more—some distance to the northward, and the year following I made them out.



Mr. Ley, whose knowledge of this puzzling group was unrivalled, considered that our plants come under the var. *decipiens* of N. E. Brown (who recorded the variety from "Leigh Woods" in *Engl. Bot. Suppl.*); but that "they are much nearer to type *latifolia* than to the Minehead plant called '*decipiens*.'" And the opinion of Mr. Archer Briggs coincided.

Dr. Boswell Syme, in *Report Bot. Exch. Club*, 1874-5, wrote:—"The extremes in British specimens lie between some sent from Symonds Yat, Glouc. by the Rev. Augustin Ley, in which the leaves are nearly as broad as long, with large and very acute lobes; and the Leigh Woods plant described and figured as *P. scandica* in *E.B.* ed. iii, tab. 484, where the leaves are only about half as broad as long and the lobes shorter and much blunter." Dr. Syme suspected that the Leigh Woods specimens forwarded to him at different times by Miss Atwood, H. C. Watson and T. B. Flower were all from the same tree. I think that was certainly the case, for in conversation with Mr. Flower years afterwards I learnt that the only tree known to him and shown to Mr. Watson was the large one that overhangs a precipice on the south edge of Nightingale Valley.

*P. latifolia* has been described by some Continental botanists as a hybrid under the name of *Aria-torminalis*, a view to which the texture and clothing of the leaves, as well as their form and lobing, lend support. Mr. Archer Briggs, however, raised some trees from fruit of wild Devon specimens and found them come perfectly true in all respects. Neither in leaf nor in inflorescence did they show the least departure from the certainly indigenous *latifolia* of Devon and Cornwall. This fact is against a supposed hybrid origin for the species, as also is its distribution. At the present moment I understand that Prof. Hedlund, a Swedish botanist, is about to bring forward some entirely novel views on the derivation of these plants, and that a forthcoming Monograph of his will probably give us a change of names both for the Clifton and Leigh *latifolia*, and for the Cheddar *Pyrus* which we are calling *intermedia*.

If it be prudent to base an opinion on so little material it might be said that this species is more tree-like than *P. Aria*. I have rarely known the latter to produce a distinct bole, and never one to equal in size those of our oldest *latifolia*. The growth of White Beam corresponds rather to that of Hazel.

This tree is seldom used in ornamental planting. But specimens cut in a Keynsham garden led astray a correspondent of *Journ. Bot.*, who in 1899 unwittingly quoted as a native record the label that had reached him and from which the word "cult." had been omitted. It was pointed out in the *Journal* at p. 488 that the locality was a shrubbery where the tree had been planted by a former member of the Fox family, together with other rare and interesting shrubs.

**378. *P. torminalis* Ehrh.** *Wild Service-tree*. "*Serb*" in Sussex, evidently from the old name *Sorb-tree*, in Latin *Sorbus*.

Native; in woods; rare.

April and May.

**G.** Formerly in or near Cook's Folly Wood, now gone; *T. B. Flower*. St. Vincent's Rocks; *Winch*, *MSS.* in *New Bot. G.* (1835). Mr. Flower informed me that his record of "St. Vincent's Rocks" in the *Phytologist* and Swete's

*Flora* was not a personal one ; and Mr. S. Freeman wrote in 1841 that he could not find any on the Rocks. Steep bank of the river below the railway under Shirehampton Park ; several trees found there in 1888 by Messrs. Burr and Fry. Oldbury Court Wood ; *W. E. Green*. A single small tree grew from a crevice in the pennant rock on the face of a low cliff near the second mill in Glen Frome, Stapleton, prior to 1886, in which year it died. Wood at Conham near the old Spelter-Works ; *Herb. Stephens and Swete, Fl.* In 1893 Mr. D. Fry and I found six or seven small trees near the Avon above Conham. Some grew by the tow-path just above the old Spelter-Works, and others high up in the wood a short distance below the ruin. All of them were cut down some years later. The old records were, however, confirmed. Several small bushes, stunted by lopping, in a hedgerow half a mile or so west of Winterbourne Church. Four or five trees, the largest about 20 feet high, near together in Westridge Wood above Wotton-under-Edge. Some splendid examples—at least 40 feet high, with boles of four to five feet in girth and clear of branches for some distance above the ground—stand in Chill Wood near Iron Acton, between the railway and the river Frome. These are by far the finest in the district. Bishop's Hill Wood, Wickwar.

**S.** Leigh Woods ; first remarked by Mr. S. Freeman in *Phytol.* I, Oct. 1841. There are at least a dozen bushes on rock by the river-bank under the Woods. When first noticed by me in 1881 these had not flowered, and were not observed to do so until 1896, when some of the taller underwood that shaded them was cleared away : then five or six of the largest bloomed freely. In another similar place about half a mile lower down the Avon there are a few more bushes. The leaves of these plants differ in shape from those figured in *Engl. Bot.*, being much narrower across from the tips of the basal lobes. One tree in the Old Park, Abbotsleigh ; *D. Williams*. Backwell Hill ; one old weather-worn bush above the big quarry. A good many trees of fair size in Portishead Wood by the Woodlands Road ; and some trimmed bushes in the hedge on the opposite side of the way. A few on the N.W. edge of Weston Big Wood. In several spots on the Cleeve side of King's Wood, Yatton. "*P. terminalis* seems plentiful in Col. Long's Woods on the Congresbury side, with *Tilia cordata* and *Lithospermum purpureo-cæruleum*. In a very small portion of the wood I counted ten trees, many in fruit and some of them upwards of 20 feet high, Oct. 1888 ;" *D. Fry*. I saw a number of those in 1892. Near Mells, several trees that may have been planted ; *Rev. S. Laing*. Friary Wood at Hinton Abbey ; *Sole* in *Bot. Guide*. Hinton Wood ; *Dr. Davis* in *Fl. Bathon*.

Among the rosaceous shrubs that adorn Clifton gardens are many nursery-men's species of *Pyrus*. At least five of these can be seen in Victoria Square and on the way down to the Victoria Rooms. A very handsome tree in a cottage garden at Congresbury must be rare, for none of my correspondents seems to recognize it. In point of size, the most remarkable specimen of this family that I know, wild or planted, stands at the back of Buckingham Chapel in Carlton Place.



## LYTHRACEÆ.

LYTHRUM *Linn.***379. L. Salicaria** *L. Purple Loosestrife.*

Native; in wet places; common. More frequent in the southern division of the district than in Gloucestershire. July and August.

**G.** Banks of the Frome by Stapleton, Frenchay, Moorend etc. Bitton withy-bed. Bank of the Avon from Conham to the county boundary above Bitton. Frampton Cotterell. Charfield. Falfield. Tortworth.

**S.** By the Avon under Leigh Woods, and in many spots on the riverbank above Bristol from Brislington to Twerton as well as in other damp places on that side of the Avon valley. Clevedon. The Max meadows near Winscombe. Abundant throughout the marsh-lands from the Mendips to the Channel. Wells and the peat moors. Frequent about Bath; *Fl. Bathon.*

PEPLIS *Linn.***380. P. Portula** *L. Water-Purslane.*

Native; in pools and swampy places; rare. July and August.

**G.** In a muddy pool and some shallow ditches on the south side of Siston Common; and in a stony pit (old excavation) on the north side of the Common. First noticed in 1901 by Mr. D. Fry. Boggy spot on Rodway Hill near Mangotsfield. Recorded from Bitton parish by Canon Ellacombe in his list, pub. 1870. Plentiful in some boggy pits on Yate Common.

**S.** On the edges of wet bogs at the Mineries on Mendip, 1884 and subsequently. In peaty pools near the summit of Blackdown on Mendip, 1902.

## TAMARISCACEÆ.

TAMARIX *Linn.***381. T. anglica** *Webb. Tamarisk.*

Alien; to be seen in many places on the Channel coast, but rarely except where planted. July and August.

## ONAGRACEÆ.

## EPILOBIUM Linn.

382. *E. angustifolium* L. *Rose-Bay.*

Native ; on wood-borders and broken ground, with a great liking for railway banks. Rather common and usually abundant in the spots where it occurs.

July and August.

**G.** By the Boiling Well under Ashley Hill, 1897 ; *Miss Roper*. On pennant banks by the Avon near Hanham. In the Boyd valley below Wyck. Coppices by the railway east of Winterbourne. On Ivory Hill near Coalpit Heath, appearing in places where the broom and brushwood have been burnt. Abundant in woodland about Tortworth Park, where the white-flowered form is reported as plentiful by Mrs. Woodford.

**S.** Plentiful in some seasons by the Portishead railway under Leigh Woods. Near Abbotsleigh. A large patch on a railway bank between Whitechurch and Pensford. Clutton. Upper end of Brockley Combe. Clearings of the woods in the Wrington valley. Clevedon ; *W. E. Green*. Congresbury ; *D. Fry*. Worle. In plenty near Shipham. The Mineries, and frequent in the hill country north of Wells ; *Miss Livett*. Woods between Chewton Mendip, Litton and Hinton Blewett. Downhead Common ; *D. Fry*. Paul Wood near Temple Cloud, abundant ; *Miss Roper*. Railway cutting between Shepton Mallet and Cranmore ; *Fl. Som*. In great abundance on peat towards the southern limit of the district, where it often appears in masses conspicuous at a long distance. It was noted by Thomas Clark as early as 1826 to come up in great plenty on fresh earth dug out in making the rhines ; and is stated to have sprung up in similar quantity after a big fire on the moor.

Besides the instances given above, many are on record in other districts of the curious power this plant possesses of suddenly appearing in strange fashion upon newly dug soil, or after a heath or woodland fire, in places where it had never been observed before. A very remarkable invasion on the site of a burnt pine wood is described by Mr. F. Stratton in *Journ. Bot.* 1909, p. 385.

Our plant is *E. macrocarpum* Steph. and is certainly indigenous.

383. *E. hirsutum* L. *Great Willow-Herb.*

Native ; in wet ditches and watery places ; common. July and August.

White-flowered plants have been found by Mr. D. Fry by the riverside near Newton St. Loe ; in a field-ditch between Marksbury and Houndstreet ; and in a hedge-bottom at the latter place. At the first-named station this beautiful sport or variety seemed to appear suddenly where only coloured flowers had been seen before.

**VAR. subglabrum** Koch.

**G.** Shirehampton. Glen Frome. By the Bradley Brook near Winterbourne. In the Boyd at several spots. The Folly Brook. Streamside at Ox Bridge, Coalpit Heath. Lyde Green.



**S.** Beside a stream among the hills midway between Failand House and the Bristol to Clevedon road! *D. Williams*. By the Cam Brook, Dunkerton! *D. H. White*.

A rather striking form in its extreme state, dark bright green in foliage on account of its glabrescence (*plante d'un beau vert*; *Rouy*): the hairiness of the stem and leaves being remarkably feeble when compared with that of the ordinary plant. Both type and variety are noteworthy for having a pilosity of two distinct kinds, *viz*: long hairs more or less sparsely set at somewhat regular intervals amid a short and close glandular pubescence; and between these there are no intermediates. It is stated in French and German books that *subglabrum* occurs "here and there" through the more northern and mountainous regions of Western Europe, and doubtless it may be so with us, but in this country little notice has been taken of it either in descriptive manuals or in local botany. Among those to which I have been able to refer, the Floras of Berks and Middlesex alone allude to the variety as being "not uncommon." A series of intermediates doubtless connects good *subglabrum* with the type; beyond which there exists a still more hairy plant: the *var. villosissimum* Koch. It does not appear that soils can influence these forms. At Failand the shaggiest and the most glabrescent grow side by side on the same stream. I have seen *subglabrum* in Clifton gardens.

**384. *E. parviflorum* Schreb.** *Small-flowered Hairy Willow-Herb.*

Native; on damp roadsides, ditchbanks and the like; common.

July and August.

With white flowers along a ditchbank on the peat for 100 yards by Shapwick Drove.

A sub-glabrous form = *var. subglabrum* Koch. (*E. rivulare* Wahl.) is recorded from Wyck; *J. G. Baker*. It also grows along a hedge-bottom by the high road between Patchway and Almondsbury, where it was pointed out to me by Mr. C. Bucknall; near Hall End; and by Sodam Mill, Cromhall. It is suggested in *Fl. Heref.* that this state is induced by growth in very wet situations, as on river-banks; and that it does not occur in merely *damp* places. The scarcity of the form in this district prevents us from forming an opinion on the correctness of that view.

**385. *E. montanum* L.** *Broad-leaved Willow-Herb.*

Native; on walls, banks and dry waste ground. Very common and generally distributed. Throughout the kingdom this appears to be the most abundant and ubiquitous of the genus.

June to August.

**386. *E. lanceolatum* S. & M.** *Spear-leaved Willow-Herb.*

Native; on dry rubbly banks, wall-tops and roadsides; rare. Largely restricted to the pennant sandstone, and entirely absent from wide portions of our area.

July to October.

**G.** Glen Frome, Stapleton; *G. H. K. Thwaites*. Still plentiful there on the sandstone banks, as well as higher up the Frome valley about Frenchay

and Cleeve. Stapleton and Hanham, Bristol; *Engl. Bot.*, ed. iii. Conham; *Herb. Stephens*. It occurs on the old quarry rubble here and there from Hanham down to Crew's Hole. On rock of the cutting at Mangotsfield Station, from 1891 to the present time. On rubble in Stanbridge Quarry near Mangotsfield. About a pennant quarry by Cog Mill, west of Frampton Cotterell. Abundant on a roadside bank at Ivory Hill! *Miss Roper*.

**S.** Bank in Sandy Lane not far from the Abbot's Pond near Abbotsleigh, 1897; and in a quarry by the roadside near Hallatrow, 1898; *C. Bucknall*. Plentiful about the pennant quarries at Fox's Wood, Brislington; and sparingly on a wall at Keynsham; *D. Fry*. Wells; *S. H. Bickham in litt*.

First recorded in Great Britain by Dr. Thwaites from Bristol in 1847. See *Phytol.* II, p. 762, where Mr. Hewett Watson comments on a supply of excellent specimens forwarded by Thwaites, and Stephens to the Botanical Society of London. The figure in *Engl. Bot. Suppl.* is from a plant furnished by Thwaites in the same year. By a misprint or misreading of his label, "Salterton" is given as the locality instead of "Stapleton."

First noticed in Somerset by Mr. D. Fry, July, 1886. His Brislington station is close to the river Avon, and almost within a stone's throw of some spots where the plant grows on the Gloucestershire side at Hanham. That it had been so long overlooked in Somerset is no doubt due, in part, to the somewhat inaccessible position of the locality on property of the Great Western Railway.

"The peculiar grey-green hue of its foliage, and (as originally remarked by Mr. Briggs) the pure white of the flowers as they open, turning rapidly to a rosy pink (not purple as in *E. montanum*), are characters which, apart from others, serve to distinguish *E. lanceolatum* from the other *Epilobia* with which, in the Bristol district at least, it usually grows."—*D. Fry*.

### 387. *E. roseum* Schreb. *Small-flowered Smooth Willow-Herb.*

Native; in damp stony waste places and as a garden weed. Rather common, but by no means evenly distributed. It is most frequent on the Coal-measures to the east of Bristol. July to September.

**G.** Stoke Bishop; *G. H. K. Thwaites*. Gardens in the Whatley Road, Woodland Road, and at University College, Clifton. Crew's Hole and Hanham; *T. B. Flower* in *Phytol.* I, p. 69. Noted too on rubbly banks by the Avon at Conham and Hanham Mills by Swete, D. Fry and others. Frome Glen, Stapleton; *Herb. Stephens*. Still there in quantity under a roadside wall near the river, 1910; *C. Bucknall*. Wyck; *J. G. Baker* and *D. Fry*. Stony ground by the footpath along the stream below Wyck Rocks, 1899 to 1903. Upton Cheyney; *D. Fry*. Roadside between Ivory Hill and Coalpit Heath.

**S.** St. Anne's, Brislington; *Thwaites* in *Swete, Fl.* and *W. E. Green*. New Cut; *Miss Atwood*. Garden weed at Brislington; *D. Fry*. Compton Dando, Woollard, Pensford and Stanton Drew; *D. Fry*. Plentiful and very fine under a wall at Stanton Wick, 1887 to 1895. The Wells Road near Temple Cloud, under walls on both sides of the way. Near Hallatrow; and about a farmstead between Draycott and Rodney Stoke; *C. Bucknall*. Cheddar; *J. G.*



*Baker.* Common at Compton Martin; *C. E. Salmon.* Wells and Shepton Mallet; *Fl. Som.* Lyncombe, Bath; *Herb. Flower.* Riverside, Bath; *D. Fry.* Wet places at Combe Down, Batheaston etc. not uncommon; *L. Blomefield.*

**388. *E. tetragonum* L. *E. adnatum* Griseb.** *Long-podded Square-stalked Willow-Herb.*

Native; in damp places; frequent.

July and August.

**G.** Foot of St. Vincent's Rocks; *Miss Atwood.* Bank of Avon below Bristol along the railway to Sea Mills. Waste ground by Avonmouth Docks, in plenty. Baptist Mills; *Swete, Fl.* Stapleton and Horfield; *G. H. K. Thwaites.* About a new road at Horfield, 1906; *Miss Roper.* Roadside, Ashley Hill, 1884. Frequent about Crew's Hole and Hanham; *D. Fry.* Near Wyck, 1891.

**S.** Abandoned iron-works and spoil heaps near Ashton Gate. By the tow-path under Leigh Wood. Sandy Lane, between Abbotsleigh and the Tan-pits. Brislington, Keynsham, Queen Charlton and Whitechurch; *D. Fry.* Between Publow and Woollard. Clevedon; *D. Fry.* Yatton; *Miss Winter.* Congresbury and Highbridge; *Fl. Som.* Ditchbanks east of Weston-super-Mare. Bleadon; *E. S. Marshall.* Between Cheddar and Draycott; *J. G. Baker.* Hedgebottoms between Wedmore and Mudgley. Frequent about Frome; *H. F. Parsons.* Cinder heaps, Twerton, 1896; *S. T. Dunn.* Garden weed, Bath; *W. M. Rogers.* Frequent at Bath; *Fl. Bathon.*

The very general distribution of this species about Bristol is perhaps noteworthy. Dr. Syme speaks of it as "apparently rather rare."

The *rosulate* autumnal stoles of *E. tetragonum* have been seen well developed at the middle of September. So very different is the mode in which stolons are produced in this species and in *E. obscurum*, that the character seems clearly to separate even those forms which approach one another.

**389. *E. Lamyi* F. Schultz.**

Native; on quarry rubble and waste ground. Very rare; or perhaps sometimes confused with the last species, which it resembles rather closely.

July and August.

**G.** Old colliery waste between Kingswood and Hanham; gathered in 1886 but not determined until much later. Hanham, 1890; *D. Fry.*

**S.** Several plants at Fox's Wood Quarries near Brislington 1891 and subsequently (*Journ. Bot.* 1892, p. 12); *D. Fry.* Waste ground at Corston, 1890 to 1894; *D. Fry.* Near Bath, 1895; *Herb. Burr.*

Mr. Fry's records are the earliest for both Gloucestershire and Somerset.

Specimens from the above localities agree well with those gathered and sent out by Wirtgen and Haussknecht. The species was not recognized in this country until 1853. It is, however, no longer ambiguous, but can be clearly distinguished from *E. tetragonum* by its glaucous lanceolate more acute and less strongly dentate leaves, and larger flowers. The leaves are very shortly stalked, and decurrent on the stem not by prolorgation of the limb but from the edges of the petiole.

**390. *E. obscurum* Schreb.** *Short-podded Square-stalked Willow-Herb.*

Native ; on wet roadsides, ditch-banks and damp quarry ground ; common.

July and August.

Plentiful both above and below Bristol in the valleys of the Avon and the Frome, and also in that of the Chew. A good deal of well-marked *obscurum* is often associated with *lanceolatum* at the stations of the latter.

"Many plants of *E. obscurum* have come under my notice in the country about Pensford and Stanton Drew. At the end of August I find the elongated æstival stolons with distant pairs of small obovate leaves to be fully developed. Some of the longer-podded forms of *E. obscurum* may perhaps be mistaken for *E. tetragonum*, but the æstival and elongated stolons of the former species clearly separate it from the latter in which the stolons are autumnal and rosulate."—*D. Fry*.

**391. *E. palustre* L.** *Narrow-leaved Marsh Willow-Herb.*

Native ; in swamps or peat moors ; local.

July to September.

**G.** Swampy bank of the Trym above Sea Mills, 1883. Marsh ditch below Shirehampton ! *Rev. W. H. Painter*. Bog on Siston Common, 1898 ! *Miss Roper*.

**S.** Marsh by the Avon under Leigh Woods. Small bog in a wood by Sandy Lane near Abbotsleigh. Marsh by the Chew above the viaduct at Pensford, 1896 ; *D. Fry*. Clevedon ; *W. E. Green*. Borders of pools by the railway between Yatton and Clevedon. Berrow Marsh ; *Rev. E. S. Marshall*. Frequent about Frome ; *H. F. Parsons*. Common on the southern peat moors, where it is the prevailing *Epilobium*, and is ranked by Dr. C. E. Moss with sundews and cotton-grasses as a "subdominant and abundant species."

Swete put it in a list of plants reported to grow near Bristol, but for which he had no specified habitats. *E. palustre*, therefore, was not included in his *Fl. Brist.* Nor is it mentioned in the *Fl. Bathon.*

"This would seem to be strictly paludal. It does not occur in damp ditches or merely wet places where the semi-aquatic *hirsutum* and *parviflorum* are usually so frequent, but is confined to peaty swamps or actual bog."—*D. Fry*.

## HYBRIDS.

***E. hirsutum* × *montanum*.**

Casual in Mr. Fry's garden at Corston, S. in 1893.

***E. montanum* × *obscurum*.**

Quarry rubble by the Avon near Brislington, S.

***E. montanum* × *Lamyi*.**

A garden weed at Corston, S. *D. Fry*. Very rare in Britain.

***E. Lamyi* × *lanceolatum*.**

Quarry rubble by the Avon near Brislington, S. *D. Fry*.



**E. roseum** × **parviflorum**.

Westbury Combe, 1895; *Rev. Augustin Ley*. Another very rare form.

**E. roseum** × **montanum**.

Garden weed in Woodland Road, Clifton; at University College, 1904; and in Mr. D. Fry's Corston garden.

**E. tetragonum** × **obscurum**.

Brislington S. 1890, and in my Corston garden, where many of such hybrids occurred from time to time; *D. Fry*. Agreed to by Mr. Ley. This is perhaps the most interesting of these plants. The form is evidently very rare; for Marshall in his paper on *Epilobia* (*Journ. Bot.* May, 1889), after recording the occurrence of a similar hybrid at Witley, Surrey, remarks:—"New to Britain, and apparently only known hitherto from the Ettersberg near Weimar."

The Rev. E. S. Marshall has repeatedly been kind enough to examine and report upon specimens forwarded to him by Mr. Fry or myself.

There is more difference of opinion amongst the botanically learned as to the fertility of *Epilobium* hybrids than on most subjects. Mr. Claridge Druce says positively that they *are* fertile; while the Rev. E. F. Linton inclines to the opposite view. Another botanical leader, with sad temerity, has laid it down that these plants do not and "cannot" produce fertile seeds. Yet there appears to exist some excellent evidence to the contrary. But what a pity it is to be so dogmatic on such a matter! Who shall say infallibly what can or cannot happen in the complex scheme of organic life? All that may reasonably be stated on the point seems to be this,—that hybrids in this genus are often infertile unless pollinated by one of the parents.

**ŒNOTHERA** *Linn.***392. Œ. biennis** *L.* *Common Evening Primrose.*

Alien. A favourite garden plant introduced from America. As an apparent escape from cultivation it often occurs on sandy or stony waste ground where the environment is favourable. July and August.

**G.** Railway banks, St. Vincent's Rocks, Bristol; *Dr. St. Brody* in *Report Bot. Exch. Club*, 1867. And *W. T. Dyer*, 1869, in *Herb. Br. Mus.* In the Black Rock Quarry under Sea Walls, 1867 and some years afterwards; *H. J. Charbonnier*. Quarried ground between Conham and Hanham, 1885 and subsequently.

**S.** Stony Slope by the Avon under Leigh Woods. Abbotsleigh; *E. F. Young*. Near Pill! *Mrs. Sandwith*. Abundant on railway banks by Bedminster Station; first reported thence in 1890 by *J. F. Hopkins*. Quarry rubble by a limekiln at Failand and near Clapton; *Miss Roper*. Kewstoke; *Rev. W. H. Painter*. On the sands and by the roadside between Brean Down and Burnham, plentiful towards the town. On record there since 1837. Naturalized in many parts of the suburbs of Bath; *Fl. Bathon*.

In September, 1906 the Rev. E. S. Marshall, suspecting that the Burnham plant was not ordinary *Æ. biennis*, submitted some specimens to Dr. Focke at Bremen. He reported that they appeared to agree with a form from the sandy coast of N. Germany which he had named *Æ. ammophila*, and which might be placed midway between *Æ. muricata* and *biennis*, being very near the former but with larger flowers like those of the latter.

Some botanists who have closely studied these plants conclude that *Æ. biennis* is a highly variable species, the forms of which cannot be satisfactorily defined. "Dès à présent nous ferons une remarque fort importante sur laquelle nous appelons toute l'attention des botanistes, c'est la variabilité de la grandeur de la fleur chez les Onothères. . . . On ne saurait considérer la grandeur ou la petitesse des fleurs comme des caractères susceptibles d'être employés dans la classification. D'ailleurs, . . . chez toutes les espèces d'*Oenothera*, on trouve la forme à grandes fleurs et la forme à petites fleurs et souvent des intermédiaires entre les deux. Ce sont là des variations sans importance que nous nous refusons à enregistrer à titre de variétés."—*Léveillé, Mon. Oenothera*. See also an article by G. A. Boulenger, F.R.S. in *Journ. Bot.* 1907, pp. 353–363.

### 393. *Æ. odorata* Jacq. *Sweet-scented Evening Primrose.*

Alien; long established in a very few places. A Patagonian species.

July to September.

**S.** Plentiful in a cutting of the North Somerset Railway 150 yards north of Brislington Station, 1907. Uphill sand-hills, 1877; *T. F. Perkins*. Sands between Weston-super-Mare and Uphill; only three plants seen there in 1880. Mr. Borrer had got it at Weston many years before; *Syme* in *Engl. Bot.* There were certainly no gardens on that bit of coast in those days, and when I saw the plant cultivated about villas newly built on the ground I thought it had been procured from the sands. Now probably it is extinct from extension of building and enclosure. Burnham sand-hills, 1859; *Herb. Clark*. Seen towards Brean Down in 1869 or 1870 by Mr. E. Cleminshaw; *H. S. Thompson*. Then for a long while it must have been practically absent from those sands for I could not find any until 1883, when a single specimen was seen at Berrow. And Mr. Thompson says (*Journ. Bot.* 1905, p. 62) that to his knowledge the plant was extremely scarce for about fifteen years. Of late, however, it has appeared in abundance between Berrow and Burnham, although most of the sand has been enclosed or built upon.

## CIRCÆA Linn.

### 394. *C. lutetiana* L. *Enchanter's Nightshade.*

Native; in woods and moist shady places; common.

July and August.



## HALORAGACEÆ.

MYRIOPHYLLUM *Linn.*395. *M. verticillatum* L. *Whorled Water-Milfoil.*

Native ; in ponds and ditches ; rare and local.

July and August.

**G.** Shirehampton ; *Swete, Fl.* There is no other record. The plant is no doubt extinct at Shirehampton. Near Tortworth, 1883.

**S.** Peat ditches in the Walton valley below Weston-in-Gordano. Rhines on Nailsea Moor, Tickenham Moor, and between Claverham and Yatton. Ditch in the Portbury marshes, 1899. In the canal at Camerton, 1902. Canal near Bathampton ; *C. E. Broome*. Prior Park ponds, Bath, 1864 ; *Herb. Jenyns*. Burtle turf moor, 1836 ; *J. C. Collins*. Edington Moor. Ashcot Moor ; *Miss Livett*.

The var. *pectinatum* DC. is credited to the peat moors in *Fl. Som.* ; and is mentioned also by Mr. C. E. Moss in his work. But with uncertainty in both.

396. *M. spicatum* L. *Spiked Water-Milfoil.*

Native ; both in still and running water ; frequent. June to August or later.

**G.** Shirehampton ; *Rev. W. W. Spicer* ; and *Thwaites* in *Swete, Fl.* Pond in St. Philip's Marsh ; *Herb. Stephens*. New Passage, 1834 ; *Herb. Powell*. Tortworth Park. Frequent in the river Avon, but not flowering except in shallows.

**S.** Clevedon ; *W. E. Green*. Very common on Nailsea Moor ; *D. Fry*. Yatton and Kenn Moors. Very plentiful in brackish ditches inside the sea-bank between Portbury and the Avon mouth, where I have seen it flowering profusely in November. Rhines about the old Weston Junction. Artificial pond in the Prince Consort Gardens, Weston-super-Mare, 1890. Ditches in the Cheddar valley, and between Brent Knoll and Berrow. Highbridge. Common near Frome ; *H. F. Parsons*. Ponds in Prior Park, Bath ! Plentiful in the Bath canal ; *Fl. Bathon*.

397. *M. alterniflorum* DC. *Alternate-flowered Water-Milfoil.*

Native ; in lowland ditches ; rare and local.

May to July.

**G.** "Berkeley, Glouc. 1872" ; *Herb. Flower*. Cited for West Gloucester in *Topogr. Bot.*

**S.** In several ditches on the Nailsea side of Tickenham Moor, not far from the central drove. Abundant there in May, 1902, when I first saw the plant in this district. Ditches near the Channel between Portbury and Portishead, 1904. Axbridge moors ; *H. S. Thompson* in *Fl. Som.* Moor ditches below Weston-in-Gordano, May, 1910.

## HIPURIS Linn.

398. *H. vulgaris* L. *Mare's-tail*.

Native; in ponds and marsh ditches. Frequent in the south of the district: very rare in West Gloucester. June to August.

**G.** Lake in Tortworth Park; *Baker* in *Withering*, 1796. Still there in 1909. Side of the river Frome near Stapleton, 1835; *Stephens Cat*.

**S.** Portbury marshes. Nailsea Moor. Tickenham Moor. Peat ditches below Weston-in-Gordano. Claverham. Yatton. Kenn. Clevedon. In the Yeo Reservoir; *C. E. Salmon*. Between Weston-super-Mare and Hutton; *St. Brody*. Plentiful in ditches that intersect the moors below Cheddar and Draycott. Knowle Moor, Wookey; *Miss Livett*. Frequent on the peat moors. Prior Park ponds, Bath; *Herb. Jenyns*. Most abundant there in 1902.

The only British plant with merely one stamen in its flowers, and that often absent.

## CUCURBITACEÆ.

## BRYONIA Linn.

399. *B. dioica* Jacq. *Red or White Bryony*.

Native; in hedges, thickets and open ground; rather common.

May to August.

**G.** Abundant in hedges about Sea Mills and Shirehampton. Combe Glen. Pur Down. Stoke Park. Stoke Gifford. Ingst. Elberton.

**S.** Bedminster Down. Flax Bourton. Nailsea. Wraxall. Frequent near Portbury and Portishead. Hedges about Walton-in-Gordano. Near Clevedon. Brislington. Whitechurch. Loxton, Hutton and Bleadon; *Mrs. Gregory*. On some of the higher limestone slopes on Mendip, where no bushes are, it trails over stones in the open. Twerton and Englishcombe. Duncorn Hill. Hedges, common; *Fl. Bathon*.

It is a remarkable fact, seeing how frequent this plant is in the neighbourhood of Bristol and throughout the counties of Somerset and Dorset, that it appears to be entirely absent from Devon and Cornwall.

Bryony has been sometimes called "Mandrake" by the unlearned, and the name still survives in Somerset according to *Fl. Som*. But it has long fallen from esteem in medicine as a potent drug of many virtues. The root, therefore, that was often unearthed in old times for the cure of a host of ailments, will be unknown to most of us; and some may be surprised to learn that it can attain the size mentioned by Gerard, who (p. 719) says that Queen Elizabeth's "chiefe Chirurgion, a very curious and learned gentleman, shewed me a roote heereof that waied halfe an hundred waight, of the bignesse of a childe of a



yeere olde." Truly a royal root, well worth storage against a possible impairment by "wrinkles, freckles or sunne-burning" of the complexion of a great Queen!

It was doubtless a fruit of the real thing (*Atropa Mandragora* L.), excellently ripe or well grown, which was given to L'Obel at Bristol during his tour in the West of England sometime about the year 1569. "Mandragoras Mas . . . apprime matura nobis dederunt Bristoiæ Occiduo Angliæ, aprico et tepidiusculo horto."—*Advers.* p. 106.

"Mandrake or Mandrage . . . ye shall finde it in the gardens of some Herboristes the which do set it in the sonne. The Apples of Mandrake in this countrie be ripe in August."—*Lyte*, p. 438 (1578).

"The apples of this be of a color turnyng toward saffron. They smell plesantly, joyned with a certain grevousnes. This kind of Mandrage I have oft times sene in England. The rootes which are counterfitted and made like little puppettes and mammettes which come to be sold in England in boxes with heir, and such forme as a man hath, are nothyng elles but folishe feined trifles and not natural. For they are so trymmed of crafty theves to mocke the poore people withal, and to rob them both of their wit and theyre money."—*Turner, Herb.* II, p. 46 (1562).

## PORTULACEÆ.

### MONTIA Linn.

#### 400. *M. fontana* L. *Blinks. Water Chickweed.*

Native; on the edges of swamps, rills, and watery places where there is some drainage; rather rare. May to August.

**G.** Brandon Hill; *Herb. Stephens*; and *Herb. Flower*, 1841. Still there in 1904. In boggy spots close to Mangotsfield Junction, and in shallow drains on Siston Common. Stapleton; *T. B. Flower* in *Swete*.

**S.** Plentiful by the stream between Failand Farm and the Tan-pits; and swamps in the old Park, hard by. On the wet margin of a rough pasture adjoining the G.W.R. about a mile N.W. of Keynsham; first noticed by Mr. D. Fry in 1886. Peat ditch and tussocky meadow below Weston-in-Gordano; *C. Bucknall*. Clapton Moors. Wet sandy ground on Downhead Common; *Miss Livett*. Boggy spring-heads and rills on Blackdown, Mendip. Near Wells; *Fl. Som.* Drier parts of the peat moors, liking old shaded cart-tracks on the droves. Meadows at Farleigh Castle by Bath; *T. B. Flower*.

[*Claytonia perfoliata* Donn.

Alien. Garden weed at Failand, fugitive; *Miss Agnes Fry*. On waste ground at Redland, Bristol, June, 1888; *H. S. Thompson*.]

[*C. sibirica* L.

Alien. In two private woods at Frenchay, G.—Cleeve Wood and Begbrook Wood! *H. J. Wadlow*.]

## [PARONYCHIACEÆ.]

[*Corrigiola littoralis* L.

A southern species; alien in this district. A few plants on waste ground near Bath; *S. T. Dunn* in *Journ. Bot.* 1896, p. 478.]

[*Herniaria hirsuta* L.

Another rare British plant; alien with us. It grew over a small space on waste ground at St. Philip's, Bristol, in July, 1904. Not seen since.]

## CRASSULACEÆ.

SEDUM *Linn.*401. *S. Telephium* L. *Orpine. Live-long.*

Native in many of its stations, introduced perhaps in some; although I have seldom seen it looking like a garden outcast. Nor does one meet with it on old walls near houses, where so many other Stonecrops flourish. On exposed rocks and stony hedgebanks, and in woods. Frequent, but often in singularly small quantity. July and August.

**G.** St. Vincent's Rocks; inaccessible. On rock in Cook's Folly Wood, Clifton, Aug. 1851; *Herb. Cundall*. Woods beyond Conham, 1835; *Stephens Cat.* Hanham Wood, 1851; *Herb. Jenyns*. Mr. D. Fry found it in the wood between Conham and Hanham Weir in 1889, and I saw one clump flowering there in 1906. Field hedgebanks in two spots N. of Almondsbury; *C. Bucknall*. At Wyck, among the rocks, 1834; *Fl. Bathon*. Wyck Rocks, 1873; *Herb. Flower*. Mr. Burr sent it to me from Wyck in 1888. Hedgebank in a lane N. of Charfield Station, sparingly in 1895. On trap rock between Damery Bridge and Falfield.

**S.** Portbury; in a cartway opening into "Water Lane" some distance above the village. The plant occurs abundantly at intervals for quite 150 yards among brambles and bracken along the lower edge of a wood. There is plenty also on the opposite hedgebank, and a patch or two has extended into open ground of the adjoining pasture as well as to a bank of the outer lane. Quarry between Yatton and Congresbury, 1905; *Mrs. Foord-Kelcey*. Cheddar Gorge; *Herb. Clark*. And (1846) *Herb. St. Brody*. I have seen it there in the wood and in at least two other spots, but only a few plants in all. On limestone banks for about 100 yards in a lane a mile or so S.E. of Edford towards Leigh-on-Mendip. Hedgebank on the west side of a wood near Masbury Station on top of Mendip, sparingly but luxuriant over a few sq. yards, August, 1888; *A. E. Burr*. Lane half a mile east of Masbury; *R. V. Sherring*. Laneside, Croscombe; *Miss Roper*. Easton; *Miss Livett*. Postlebury Wood; and Vallis, one plant; *Fl. Som.* Railford Wood near Whatley: the plant seldom flowers being in dense shade; *Rev. S. Laing*.



**402. *S. Fabaria* Koch. Orpine. Live-long.**

Native; on dry rocky banks; very rare.

July and August.

[**G.** I was informed by Mr. Flower that his record for this plant near Clifton Zigzag (*Sweet*, *Fl.* p. 33) was an error. And I fear there was some mistake—probably on my part—connected with the statement “Common about Kingswood” attributed to Dr. Hassé in my first book.]

**S.** Among bushes on pennant in a rough pasture by the G.W.R. between Keynsham and Brislington; pointed out to me in 1886 by Mr. D. Fry. In 1892 I found a good quantity on similar ground at some distance on the other side of the line. Great Elm; *Dr. H. F. Parsons*. Still there in 1900; *Miss Roper*.

I have followed Babington in separating the two Orpines. But they resemble each other so closely that many writers make no attempt to distinguish them. The Rev. R. P. Murray would not admit *S. Fabaria* into the *Flora of Somerset*, holding that the plants between Keynsham and Brislington did not agree with Koch's description. He considered they were too close to ordinary *S. Telephium* (*purpurascens* Koch) to be referred to the other “species.” Mr. Fry, however, thought differently and I agreed with him. My own difficulty has been that I cannot find anything in the district to match the *Engl. Bot.* figure of *S. Telephium a. purpurascens* with its nearly orbicular leaves.

**403. *S. album* L. White Stonecrop.**

Native without doubt in a few places; a denizen in the majority. Rather common on walls throughout the district.

July and August.

**G.** Abundant on rock at Penpole Point and on Kingsweston Down. Old walls at Kingswood; Frenchay; Downend and Moorend. On a roof and wall at Almondsbury. Old walls at Tockington, July, 1836; *Miss Knapp*. Still there, abundantly, in 1906. In plenty on walls about Frampton Cotterell, particularly near the Church and in the lane leading thence to the mill. Walls about Cromhall and Rangeworthy. Wyck Rocks; *Herb. Stephens* and *Fl. Bathon*. Some still there at the present time.

**S.** Keynsham. Clutton. Bourton. Belmont Hill; *Miss Roper*. Nailsea. Kenn. Yatton. Congresbury. Walls in Winscombe village. Worle. On walls and rock at Blagdon, 1899; *Miss Livett*, Rowberrow and Churchill Batch, 1886; *D. Fry*. A common sight on walls of cottage gardens at foot of northern slopes of the Mendip Hills; *Dr. C. E. Moss*. It grows on rock at Churchill Batch both above and below the road, which is cut along the hillside. “Apparently native there”; *Rev. E. S. Marshall*. But the rock has all been quarried, I think. In several spots at Mells. On limestone rock in Asham Wood; on rock and walls at Great Elm; and on walls at Holwell and Vallis, 1882; *H. F. Parsons in litt.* The plant has every appearance of being wild in some of the south-eastern localities. It grows at Nunney on a hillside where rock protrudes; *Rev. S. Laing*.

**404. *S. dasyphyllum* L. Thick-leaved Stonecrop.**

A doubtful native. In numerous localities, almost always on walls. Yet it never appears to have been planted.

June and July.

**G.** "St. Vincent's Rocks and walls about Clifton"; *Shiercliff's Bristol and Hotwell Guide*, pub. 1789. "St. Vincent's Rocks, in the road to Giant's Hole"; *Shiercliff*, ed. 1809. The path to Giant's Hole was quarried away long since. Shown to James Sowerby on the walls of Clifton by Dr. Dyer, June, 1799; *Note on the drawing for Engl. Bot.* Garden walls below Clifton Church; *Winch*, MS. 1835, in *New Bot. G.* Walls at Belle Vue, Clifton, June, 1839; *Herb. Flower*. Walls at Clifton; *Herb. Stephens*. Swete, too, must have seen it about 1853, for he starts his record. Clifton Hill, June, 1868; *Rev. W. W. Spicer*. It probably became extinct soon afterwards, for my quest began in 1875 and I have never met with the plant at Clifton. High wall in Glen Frome opposite Stapleton, 1882 to 1891; now gone. On the inner face of a wall in a lane leading north from the high road at Hanham; abundant from 1884 to 1890. Then the wall was raised and one could no longer look over it. Old roadside walls along a considerable distance between Frogland Cross and the Cross Hands Inn on the Iron Acton road. On a few yards of wall by the Rudgway road and in two other spots at Tockington. Hambrook. Wall on the high road from Yate to Chipping Sodbury; *C. Bucknall*.

**S.** Bedminster, on an old wall; *J. C. Collins*, MS. in *New Bot. G.* Wall beyond the National School, Bedminster; *Swete*, *Fl.* Near Abbotsleigh; *Rev. W. H. Painter*. On rock and a rubble wall adjoining, by the G.W.R. about a mile N.W. of Keynsham. It is impossible to say whether the plant here originated on the rock or has spread from the wall. Wall near Portishead Church, 1894 to 1903; *Miss Roper*. At the top of Tickenham Hill near Naish House; *C. Bucknall*. I have seen it on several walls thereabout and near Cadbury Camp. On rock at Stone-edge Batch; *Miss Livett*. Old walls by the roadside between Nailsea and Tickenham, abundant; and also about farm buildings etc., at the bottom of Tickenham Hill on the Clevedon road; reported thence by many observers. On a wall bounding the old Cyperus patch at Walton-in-Gordano, 1886 to 1900; *D. Fry*. Clapton and Clevedon; *W. E. Green*. Near the Church at Weston-in-Gordano. Cranmore; *Miss Livett*. Luxuriant and plentiful on a wall at Buckland Dinham; *H. F. Parsons*.

Survives sometimes in a surprising way when a wall is repaired or repointed, coming out again apparently through the hard mortar.—*D. Fry*.

#### 405. **S. acre** L. *Wall-Pepper. Biting Stonecrop.*

Native; on rocks and walls nearly everywhere, and abundant on coast sand-hills where other vegetation has enabled it to get a footing. June and July.

##### [**S. sexangulare** L.

Alien in this district, and a doubtful native of Britain.

I have known it many years on two or three walls about Wyck; and there is a specimen in *Herb. St. Brody* labelled "Wyck Cliffs, Aug. 1869." Naturalized also on the top of Banwell Hill, where Mr. Fry and I saw an abundance some years ago.]

#### 406. **S. reflexum** L. *Crooked Yellow Stonecrop.*

Denizen; chiefly on old stone walls and the supporting masonry of hedge-banks, almost always near houses; rather common. Rarely on rock.

July and August.



**G.** Sea Mills and Stoke Bishop; *Swete, Fl.* Shirehampton. Mooredend. Almondsbury. Roadside walls by Cog Mill between Winterbourne and Iron Acton. Walls at Frogland Cross and on Perrinpit Farm on the way from Almondsbury to the Cross Hands. Old quarry ground in a wood at Kendleshire near Coalpit Heath, 1908; *F. Samson*. Thornbury. Charfield. Walls about Wyck.

**S.** Keynsham, an escape; *D. Fry*. Stanton Drew. On walls in the hamlet of West Town. Cleeve. Yatton. Quarried rock by the roadside at Winscombe. Cheddar village. On walls in several places towards Leigh-on-Mendip. Walls and rock by the roadside in Mells village. Weston-super-Mare. Wells; *Miss Livett*. Old walls at Swainswick, Batheaston etc. frequent; *Fl. Bathon*.

The variety *albescens* has been planted with *Hypericum calycinum* on a railway embankment at Hallatrow Station.

#### 407. *S. rupestre* L. *Rock Stonecrop.*

Native; on rocks, rare. Planted on walls in many places, and seems easily to become established both on pennant and limestone, flowering abundantly.

June to August.

**G.** Wyck Rocks, 1886. The St. Vincent's Rocks plant is *var. minus*.

**S.** Cleeve Combe. Walton-in-Gordano; *W. E. Green*. Cheddar Gorge, plentiful; flourishing on the loose screes. Ebbor Rocks. Worlebury Camp, Weston-super-Mare; *Miss Roper*.

*var. minus* *Syme*.

**G.** St. Vincent's Rocks, on unfrequented slopes and ledges, not flowering freely.

**S.** Slopes by the Avon under Leigh Wood. Plentiful on rock between two quarries on Worle Hill, 1896; certainly native. *Journ. Bot.* 1897, p. 124.

Earliest records. "Sedum Divi Vincentii N.D. Mr. Goodyer."—*Merrett*, p. 111 (1666).

"Sedum minus a rupe S. Vincentii. Stonecrop of St. Vincent's Rock."—*Ray, Syn.* (1724).

[*S. stellatum* L. extends itself freely where planted near the Channel at Clevedon and Weston-super-Mare. *S. spurium* *Bieb.* occurs also in a few places as an introduction.]

### SEMPERVIVUM Linn.

#### 408. *S. tectorum* L. *Common Houseleek.*

Alien; always planted and does not stray. Has been widely cultivated in European countries as a useful simple from time immemorial; and is still commonly placed on the tiled roofs of country outhouses. July.

### COTYLEDON Linn.

#### 409. *C. Umbilicus* L. *Navel-wort. Penny Pies.*

Native; on rocks, loose stone walls, and the rubble footing of hedgebanks.

Common and well distributed throughout N. Somerset and around Bristol generally; but becoming less frequent towards the east and south.

June to August.

Mr. C. F. Denning showed me in 1907 a remarkable variation growing in small quantity near the Old Mill at Hanham. The lower leaves were deeply laciniate with sharply pointed divisions and a wedge-shaped base instead of being cordate; while some upper stem leaves were lanceolate entire.

Another curious plant was brought from a roadside wall at Abbotsleigh by Miss Roper. Instead of the usual pendulous flowers in a simple raceme, each pedicel had developed into a compound branch bearing imbricate fleshy scales in place of floral organs.

Earliest local and British records:—"Umbilicus Veneris . . . This herbe groweth in Welles and divers places of Summerset shyre in more plentye than ever I sawe in anye other place in all my lyfe. . . . I call it wall penny grasse." *Turner, Herb. II*, p. 169 (1562).

"Umbilici Cotyledon . . . sed etiam in Anglia occidua ad Bristoiam, plurima." *Lobel. Adv.* p. 165 (1570).

"Cotyledon vera, Wall Pennywurte, . . . It groweth plentifully in Sommer-setshyre and about Welles." *Lyte*, p. 38 (1578).

"Umbilicus Veneris, *Wall Penniwoort*, groweth . . . at Bristowe, Bath, Wels; and most places of the west countrie upon stone wals." *Gerard*, p. 424 (1597).

"Umbilicus Veneris, . . . Upon the walls at *Mangersfield*, and about *Bathe*." *Johnson, Merc. Bot.* (1634).

## RIBESIACEÆ.

### RIBES *Linn.*

#### 410. *R. Grossularia* L. *Gooseberry.*

Denizen, or stray from cultivation; in hedges and thickets—often in lonely spots—rather common. Probably bird-sown everywhere with us.

April and May.

"Wild Gooseberry" bushes are plentiful about Abbotsleigh and Failand, for example; sometimes in colonies of three or four together or exceptionally in larger numbers, as in the Rectory Wood at Wraxall where there may be so many as a hundred. Still as a rule they occur singly. The seeds germinate readily in all sorts of situations, even on wall tops and the bowls of pollard Willows along the Avon and the Chew. These pollards carry a mass of moist humus and decaying heart-wood in their crowns, from which the roots of flood-borne or bird-sown epiphytes can derive nutriment sufficient for very vigorous growth.

Some botanists have endeavoured to show that the Common Gooseberry may be indigenous in certain parts of Britain, but the reasoning is not conclusive.



**411. *R. nigrum* L. *Black Currant.***

Alien or denizen; in damp bushy places and stream sides; rather rare. April and May.

**G.** Westbury Combe; *Swete, Fl. and Herb. Jenyns*, 1856. Bank of Avon opposite Keynsham; *Herb. Stephens*. Still there in 1885; *L. W. Rogers*. Baptist Mills, 1911! *Miss Roper*.

**S.** Bushy spot on the riverbank half a mile below Rownham Ferry, 1882 to 1886. Then destroyed by a mooring chain placed on the spot. Hedge by the side of the upper Clevedon Road at Failand. By a roadside pool between Abbotsleigh and Failand, 1911! *Mrs. Sandwith*. Two bushes in a damp rocky hollow near the top of West Hill, Wraxall, 1911! By a rivulet at the foot of Dundry Hill, 1854; *Herb. Cundall*. Two bushes by the Avon at Saltford, 1895. Walton-in-Gordano, 1885; *D. Fry*. Still there on the bank of a rhine, 1911; *Miss Roper*. Worlebury Wood, Weston-super-Mare; *T. F. Perkins*. Half a dozen large bushes on the bank of a stream near Edford, 1884 to 1896. Between Hallatrow and Farrington Gurney; *Misses Cundall*. Hedge near Wells, and near Masbury; *Fl. Som.* Streamside near Great Elm; *Miss Roper*. St. Catherine's Valley, Bath; *Herb. Flower*.

**412. *R. rubrum* L. *Red Currant.***

Alien or denizen; in hedges and woods, and on riverbanks; rather common. Sometimes it has the aspect of a native plant, but I suspect our bushes have always sprung from garden fruit carried about by birds. April and May.

**G.** Two small bushes in underwood on Clifton Down, 1903. Plentiful by the riverside at Tortworth. Between Wotton-under-Edge and Alderley; *C. Bucknall*.

**S.** Damp ravine in Leigh Wood below Nightingale Valley. Wood border near the Abbot's Pond and in other like spots about Abbotsleigh. Among bushes at the south end of Beggar's Bush Lane. Field hedge, Portbury. On banks of the Chew near Pensford. Maes Knoll; *Miss Roper*. In large quantity among bushes above Saltford between the G.W.R. and the river, and by the Avon lower down. Walton by Clevedon; *D. Fry*. Hedges about Wrington, Langford and Chewton Mendip. Winterhead near Sidcot; *H. S. Thompson*. Emborrow Ponds, and Bishop's Wood, Wells; *Fl. Som.* In hedges for a considerable distance along the road between Bath and Wellow; *Dr. Burder*. Plentiful on the banks of the Cam Brook, Dunkerton. St. Catherine's, Bath; *Suppl. Fl. Bathon*. In woodland by the stream in Stoke Lane Valley; *Miss Livett*. The Rev. L. Jenyns spoke of seeing this in more than forty different places near Bath in the course of an afternoon's walk.

As the Red Currant is not mentioned by Swete in the *Fl. Brist.* we may suppose that it has become more frequent since his time.

Neither of the wild northern forms occurs with us. But *R. alpinum* is queried in the *Botanists' Guide* (1805) for "Bristol Hot Wells (Waring)"; and is noted from south Somerset by the Rev. R. P. Murray, who remarks that the species is said to have been often cultivated formerly.

Earliest British record:—"Ribes . . . I have sene them growinge in gardins in Englande, and also by a waters side at Clouer in Somersetschyre in the possession of maister Horner." *Turner, Herb. III, p. 63 (1568).*

## SAXIFRAGACEÆ.

SAXIFRAGA *Linn.***413. S. hypnoides L.** *Mossy Saxifrage.*

Native; on limestone; very rare.

May to July.

**S.** Cheddar Gorge, and the Black Rock. In mat-like masses on some moist and shady ledges of the cliffs, and in smaller quantity on scree by the roadside below. Not known elsewhere on the Mendips.

"A large patch on the Court Hill, Clevedon, with *Erodium maritimum*," 1900; *S. J. Coley*. It is very unlikely to be native in that locality where there are so many introduced plants.

Cheddar is the southernmost station for this Saxifrage in Britain. Discovered there by Dillenius in 1726. The nearest habitat appears to be in the Black Mountains on the western border of Herefordshire.

**414. S. tridactylites L.** *Rue-leaved Saxifrage. Three-fingered Jack.*

Native; on walls, dry banks and rocks. Very common. April to June.

**415. S. granulata L.** *White Meadow Saxifrage.*

Native; in pastures and by lanesides; very rare.

May.

**S.** In abundance on the N. and N.E. slopes of Stantonbury Hill. This is the locality formerly reported by Mr. Flower as "Near Marksbury"; and by others as "Stanton Prior." Plentiful in a lane near the river at Chew Magna, in two places—one for about 60 yards; and in a lane at Stanton Drew; *D. Fry*. A small quantity by the canal at Combe Hay, 1886; *A. E. Burr*.

Earliest local notice:—"The white Saxifrage groweth in drye, rough, stony places, as about the Colemynes beside Bathe in England." *Lyte, p. 288 (1578).*

CHRYSOSPLENIUM *Linn.***416. C. alternifolium L.** *Alternate-leaved Golden Saxifrage.*

Native; on the swampy margins of streams and in damp shade; rather rare and local.

March to June.

**G.** A large patch on a ditchbank near the stream between Kingswood and Alderley. At Monk's Mill, Alderley; *C. Bucknall*. Streamside near the Tannery, Uley Road, Dursley; *Miss Gingell*. Spring-head, Nibley; *W. E. Loxton*.



**S.** By a small stream near Pill, two miles and a half from Rownham Ferry; *Dr. Rogers* in *Stephens' List*. This record (quoted from Swete) refers to Markham Bottom that runs from Failand to Pill where the plant still grows in some plenty. Mr. Thompson gives it in *Fl. Som.* as "Deep gorge near Pill." Lord's Wood, Houndstreet; *D. Fry* in *Fl. Som.* Between Wrington and Langford. Stoke Lane, Edford; abundant along the streamside, 1884 and subsequently. Plentiful in Horrington Bottom and in Murdercombe between Mells and Great Elm; *D. Fry*. Frequent on the eastern border of the district; *Dr. H. F. Parsons*. Near the Mill, Coley; *Rutter's Hist.* (1829). Still there in 1909, scattered through a swampy wood by the Chew below the mill. Occasionally in damp places about Croscombe and Wells; *Miss Livett*. Wet banks at Lyncombe; *Dr. Davis*; and Langridge lane, below the church; *E. Simms* in *Fl. Bathon*. Langridge Lane, 1867; *Herb. Flower*. Plentiful in Langridge Bottom under Lansdown, 1906; *Miss Roper*. And in Ham's Bottom, 1910.

**417. C. oppositifolium L.** *Opposite-leaved Golden Saxifrage.*

Native; on wet banks, stream margins and shady places; rather common.

March to May.

**G.** Redland; Stoke Lane, Westbury; and Stapleton; *Swete, Fl.* Wet coppice between Stapleton and Filton. The Boyd valley above Bitton. By the Frome between Moorend and Winterbourne Down. Near Yate. Between Charfield and Falfield. Wickwar. Alderley.

**S.** Leigh Woods, second valley below the Suspension Bridge. In several places between Abbotsleigh and Failand, and on the eastern flank of Failand Hill. Wet lanesides under Dundry Hill. St. Anne's Wood, Brislington. Lane between Pensford and Publow; *Miss Roper*. Streamlets and spring-heads about Mendip; as by Burrington Combe, under Shipham, and in Long Wood between Charterhouse and Cheddar Gorge. Compton Martin, Ebbor and Downhead; *Fl. Som.* Frequent about Wells; *Miss Livett*. Several localities near Bath at St. Catherine's, Langridge etc. are given in *Fl. Bathon*.

First local and British record:—"About Bath and Wels."—*Gerard*, p. 693 (1597).

**[Parnassia palustris L.**

Is stated by Sole (MS. 1782) to have grown "In old pits on Burtle Moor." No specimen exists, and the record has never been confirmed although repeated searches were made by Clark and others early in the last century. Yet an incautious writer in the *Spectator* (July, 1907) lamented that "In Somersetshire the last site of the beautiful 'Grass of Parnassus' on the famous turfmoores at sea-level has been lost by reason of destruction by turf-cutting"; and he went on to say that had the spot been enclosed at a small cost the plant could have been preserved!

A consideration of the distribution of *Parnassia* shows how unlikely it is to be met with in the West of England. While of extreme rarity in Hants and Dorset it is now entirely unknown in Cornwall, Devon, Somerset, Wilts, South Wales and Herefordshire.]

## UMBELLIFERÆ.

HYDROCOTYLE *Linn.*418. *H. vulgaris* L. *Pennywort.*

Native; in marshes and boggy places; frequent.

May to July.

**G.** Boggy spots on Siston Common below Mangotsfield Junction. Peaty ditches between Stoke Gifford and Patchway. Yate Common. The Leechpool. Sodbury Common. Charfield. Tortworth.

**S.** By the stream between Sandy Lane and Failand Farm. Walton and Clapton Moors, between Portishead and Clevedon. Nailsea, Yatton, Kenn, and throughout the lowlands as far as Weston-super-Mare and Uphill. Marsh on the Berrow sands above Burnham. Common on the peat moors.

SANICULA *Linn.*419. *S. europæa* L. *Sanicle.*

Native; common and generally distributed in woods and shady thickets.

June and July.

[*Astrantia major* L.

Alien. About 1888 Mr. A. E. G. Way detected this in small quantity at the base of a wall not far from the "Tan-pits" below Failand. The plant was still there in July, 1908. The spot is at some distance from habitations and there is nothing to show how the introduction was made.]

ERYNGIUM *Linn.*420. *E. maritimum* L. *Sea Holly. Eryngo.*

Native; in two or three places on the shore of the Bristol Channel; rapidly decreasing. It was formerly a conspicuous and abundant ornament of the North Somerset coast-line, but has been largely destroyed by excursionists, holiday folk and golfers, who frequent the sands in ever-increasing numbers. Little of the plant now survives save in the more remote spots.

July and August.

**G.** The Severn shore. A few plants were noted on a shingly beach below New Passage from 1883 to 1900. One plant only survived in Oct. 1901: visitors to the neighbouring tea gardens having rooted out the remainder. With the friendly help of a cottager hard by this single specimen was preserved through 1902 and 1903. A little later there came a heavy storm on a spring-tide; waves swept the beach from end to end; and then the last trace of this fine species in Gloucestershire disappeared.

**S.** Kewstoke Bay; one plant in 1907; *Miss Roper*. Uphill; *Dr. St. Brody*. Not there now, I believe. Brean sands, still in some quantity; becoming scarcer lower down the Channel as one nears Berrow and Burnham. Abundant at Burnham and Steart; *J. C. Collins* in *New B. G. Suppl.* (1837). I have a note that in 1885 there was a "splendid show" of Sea Holly on the Steart



beaches. But a few years ago the Burnham boatmen started a cheap summer ferry across to the island, with the result that the beach there has been practically stripped.

Prof. Conwentz writes (*The Care of Natural Monuments*, p. 128): "The sea-holly (*Eryngium maritimum*) on the sea-shores of East Prussia, West Prussia and Pomerania is guarded by police orders. Some years ago it was forbidden to uproot or to offer the plant for sale, in order that this beautiful indigenous decoration of our sea-coast might be preserved."

**421. *E. campestre* L. *Field Eryngo*.**

Native, probably; on a bushy limestone hill and, at one time, on a field border lower down. Very rare; now on the verge of extinction.

July and August.

**S.** Worlebury Hill, Weston-super-Mare. In "Rarer plants observed at Weston-super-Mare, 1843" (*Phytol.* I, Art. CLXXIV), Mr. G. S. Gibson writes:—"Sparingly on the side of a corn-field, by a private road leading up to a house beyond the Church: there were only about ten plants." Another notice of plants growing at Weston by F. J. A. Hort (*Phytol.* II, p. 1047, Nov. 1847), contains the following:—" *E. campestre*. Tolerably plentiful in the corner of a grass-field on the slope of Worlebury Hill, above Weston, about a quarter of a mile from the sea." It may be remarked that Hort's locality, as described, does not altogether correspond with that of Gibson. But the point is immaterial, for the whole of that ground has long been covered with buildings. It is a pity that some botanists who gathered the plant in after years did not write their labels in any detail. Mr. T. Clark's sheets are marked simply "Weston-super-Mare, 1848." And I have seen in Bristol a packet of handsome specimens (now utterly ruined by damp and insects) labelled "Weston-super-Mare, Somerset, 1851; *W. R. Crotch*." It is from Mr. T. B. Flower that we get the first indication of a locality differing from the preceding. The four sheets in his herbarium were taken from "under a wall close to the wood at Weston-super-Mare, Sept. 1853 and 1860." This is the station we now know. Mr. Murray visited the place in 1881 and speaks of it in *Fl. Som.* as "waste ground." That is only so in the widest sense of the term. The spot is really a bit of wild hillside that has never been brought into cultivation. It lies just above the present limit of walled enclosures on the hill, and I entertain no doubt that the plant was there long before the neighbouring villas were planned. Mrs. Gregory has flowering examples gathered in 1893. After that date I fear few stems, if any, were perfected: scrambling and trampling over the ground have so much increased that it would hardly be possible for them to escape injury. In the autumn of 1895 I could find nothing but foliage scattered over three or four sq. yards, and thought the end could not be far off. Still, leaves have been reported several times since then.

*E. campestre* at Weston has a recorded history more ancient than that of the adjacent town. Its localities, on the slope of a limestone hill, are very similar to the locality where a kindred patch exists near Plymouth; and, as in the latter instance, the pertinacity with which it has kept its place among the

vegetation of a much-frequented spot weighs, with other considerations, in assigning to it the position of a native species.

### CICUTA Linn.

#### 422. *C. virosa* L. *Water-Hemlock. Cowbane.*

Native; in water. Very rare.

July and August.

**S.** Burtle and Shapwick peat moors: on record at intervals for more than a century, but extremely scarce and difficult to find. Turf-pits, Burtle Moor: *Sole* in *Collinson's Hist.* (1791). A series of specimens in *Herb. Clark*—some “from the eastern side of Catecott Drove”—are dated 1831, 1850 and 1858. Mr. Broome, of Bath, got it on Shapwick Moor about 1855. In *Herb. Flower* are several sheets from Burtle Moor gathered in 1853 and 1859. And Mr. Flower told me that he had a note of having seen the plant in the river Brue near Highbridge at a later date when he did not gather it. In July, 1888 Mr. H. S. Thompson found “perhaps a dozen” plants in a rhine near Shapwick Station (*Journ. Bot.* 1889, p. 183). His specimens were unfortunately spoiled. I see that Dr. C. E. Moss did not come across it during his ecological examination of the moors undertaken in 1901 and succeeding years; although he observed several other rarities that have shown themselves to be equally elusive.

Burnham, many years ago, and at Easton in 1880; *Miss M. W. Mayow*. In some boggy ground near Shepton Mallet; *Blackstone* in *Bot. Guide* (1805). A single plant in the canal near Bathampton; *Dr. H. Gibbes* in *Fl. Bathon*.

It is one of my deeper disappointments that during thirty years no *Cicuta* has fallen to the lot of either myself or any of the companions with whom numberless excursions have been made upon the peat. The history of the plant in Somerset illustrates the peculiar local habits of some peat moor species. There are a good many miles of ditch and moor; all of it, so far as can be judged, equally well adapted for bog-plant growth; yet a few species are found to confine themselves to a small area in one place only, while there are others that can never be reckoned on with certainty to stay more than one season in the same spot. *Apium inundatum*, *Andromeda*, *Oxycoccus*, *Polygonum minus*, *Rhynchospora fusca* and *Carex teretiuscula* offer instances in point.

In the Bristol Museum—many years ago under the old régime—there stood on guard at the Curator's door a ten-foot stem of *Angelica* ticketed *Cicuta virosa*! The dusty sentinel long remained unchallenged.

### APIUM Linn.

#### 423. *A. graveolens* L. *Celery.*

Native; in marshes and ditches, particularly near tidal waters. Locally common.

June and August.

**G.** Bank of Avon from Crew's Hole downwards, but more abundant below the city. I have a label “River side, Hotwells, July 1842; *Leo H. Grindon*.” Ditch bordering Siston Common. Plentiful along the Severn flats at Sheperdine, Aust, Pilning, Lawrence Weston, etc.



**S.** Bank of Avon at St. Anne's, Rownham and Pill St. George. Abundant in ditches footing the spoil-banks near Ashton Gate. On the coast at Portbury, Clevedon, Wick St. Lawrence, Kewstoke, Uphill, Burnham, and generally all through the marsh-lands and the "levels."

**424. A. nodiflorum** *R. fil.* *Procumbent Water Parsnep.*

Native; in marshes, ditches and streams. Very common and generally distributed. July and August.

**VAR. pseudo-repens** *Watson* = **ocreatum** *Bab. Man.*

A small plant, rooting at all the nodes. Leaflets generally 3 to 5, broadly ovate or rotund.

**G.** Marsh bordering Siston Common.

**S.** Pool, Leigh Woods; *Dr. Rogers* in *Swete*. Abbotsleigh; *Rev. W. H. Painter*. St. Anne's, Brislington. Between Bishport and Dundry; *Swete, Fl.* Marsh on the coast near Berrow! *Mrs. Gregory* and *Rev. E. S. Marshall*. Boggy rill under Black Down towards Rowberrow. Frequent in wet and boggy places; *Fl. Bathon*.

There are other variations of this species but no sharp line of separation between them. The **VAR. ocreatum** *DC.* is a dwarf form rooting at most of the nodes, with 5 to 7 sub-lanceolate leaflets and stalked umbels. See articles in *Journ. Bot.* 1879, p. 250; and 1906, p. 185.

**425. A. inundatum** *R. fil.* *Least Water Parsnep.*

Native; in pools and peat ditches; very rare. June to August.

**G.** Ditches near Over, Aug. 1864; *Herb. St. Brody*. Pools on and near Yate Common, 1886! *L. W. Rogers*. Pond on Lyde Green, 1910! *C. Bucknall*. In the Leechpool, north of Yate, abundant 1910, with the **VAR. Moorei** *Syme*.

**S.** Near Wedmore; and turf-pits on Glastonbury and Burtle Moors; *Sole MS.* 1782. These early records remained unconfirmed exactly one hundred years. Mr. Thos. Clark, writing in 1856, mentions the species as one no longer to be found on the moors, and it was believed to be quite lost from the localities described by Sole. In 1882, however, I discovered the plant in ditches on the peat between Wedmore and Edington; and in Sept. 1902 Mr. Bucknall and I found a larger quantity between Edington Drove and Shapwick. Ditch S. E. of Shapwick Station, 1910.

Taking the records for Great Britain as a whole this species is actually the commonest of the genus; but in the western counties of Cornwall, Devon, Somerset, Gloucester and Hereford this is very far indeed from being the case.

**PETROSELINUM** *Hill.*

**426. P. sativum** *Hoffm.* *Common Parsley.*

Alien; established on rocks and old walls in many places. June to August.

**G.** Abundant on St. Vincent's Rocks from a remote period. The figure in *Engl. Bot. Suppl.* was drawn from a Clifton specimen. Siston; *Dr. Hassé*.

**S.** Portishead Point. Old quarry near Yatton, 1880 and later. Old walls by the roadside between Nailsea village and the railway. Roadside rock near Sidcot. Cheddar, in small quantity. For some yards by the roadside between Wookey and Ebbor. Easton, and several other places around Wells; *Miss Livett*. Weston-super-Mare. Naturalized on old walls at Charlcombe and other places about Bath; *Fl. Bathon*.

Earliest local record :—"It is frequent upon St. Vincent's rock at Bristol."—*Culpepper, Herbal* p. 439 (1652).

**427. P. segetum Koch.** *Corn Parsley.*

Native; on hedgebanks and in damp fields, especially near salt water; rather rare away from the coast. August and September.

**G.** Sea Mills, as *Sison segetum*, 1828; *S. Rootsey*. Recorded thence also by *Thwaites* and *Flower* in *Swete, Fl.*; and in *Herb. Stephens*. The plant is still there in at least two spots; on the right bank of the Trym near its confluence with the Avon and by the tow-path above the Station. By the Boiling Well under Ashley Hill; *Herb. Stephens*. Ashley Hill; *Herb. Cundall* and *W. E. Green*. Combe Lane, Westbury-on-Trym; *A. Prichard* in *Swete, Fl.* By the quarries at Eastfield, Westbury, 1897. Hambrook, 1835; *Herb. Powell*. Roadside above Oldland Bottom, 1896. Stapleton; *Dr. Thwaites* in *Herb. Thomas*.

**S.** St. Anne's, Brislington; *T. B. Flower*. Hedgebank on the Bath road between Brislington and Keynsham. Saltford. In several places on low hills rising from the left bank of the Chew half a mile below Compton Dando. Bank by the roadside near Tickenham. In plenty on the sea-bank and by ditches in the low-lands below Clevedon. Sea-bank at Woodspring; *Hort* in *Herb. Watson*. Similarly in Kewstoke Bay. Uphill Churchyard; *G. S. Gibson* in *Phytol.* I, (1843). Mr. D. Fry and I have seen it at Uphill, on the hill in several places and more abundantly below by the sea-bank. There is plenty also on the hill above Uphill Railway Station. Sea-bank and ditchbanks between Burnham and Highbridge on both banks of the Brue, 1885 to 1908. Easton near Wells; *Miss Livett*. Manor Lane, Weston-super-Mare, 1897. Claverton, Bath; *S. T. Dunn*. Swainswick; *Fl. Bathon*.

Very easily overlooked when in fruit. It can be much more readily detected early in the season before the lowest leaves of seven to ten pairs of neatly serrate leaflets have disappeared.

**SISON Linn.**

**428. S. Amomum L.** *Hedge Stonewort. Bastard Stone Parsley.*

Native; in damp hedge-bottoms and grassy places. Fairly well distributed throughout our area, but not what should be called a common plant. It has always enough interest to arrest attention on a ramble, and so localities are here detailed. August and September.

**G.** Sea Mills. Combe Dingle and lane towards Westbury. Henbury Hill. Plentiful by the roadside between Stapleton and Hambrook. Frenchay;



*D. Fry.* Kingswood. Bitton. Roadside between Warmley and Wyck. Northwoods, west of Winterbourne. Ableton Lane, Northwick and Pilning. Ingst. Aust. Littleton-on-Severn. Rockhampton. Hill.

**S.** The New Cut and Ashton Fields; *Miss Atwood* in *Swete, Fl.* Beggar's Bush Lane. Brislington. Very abundant between Keynsham and Queen Charlton. Ursleigh Hill, Stanton Drew and Corston; *D. Fry.* Between Chew Stoke and Dundry. Yatton. Wick St. Lawrence. Grassy roadsides between Worle and Woodspring Priory. Kewstoke Bay, Weston-super-Mare, Cheddar, Draycott and Wookey; *Fl. Som.* Wells; *Miss Livett.* Frequent between Twerton and Englishcombe. Common under hedges about Bath; *Fl. Bathon.*

### APINELLA *Necker.*

**429. A. glauca** *O. Kuntze.* *Trinia glaberrima* Hoffm. *Pimpinella dioica* Sm. *Honewort.*

Native; on limestone; rare but locally plentiful. The Bristol district includes all the British stations except the one at Berry Head, Devon. One of the choicest indigenous plants in the country; and of great local interest on account of its historical associations. May and June.

**G.** St. Vincent's Rocks. Black Rock Gully by the Sea Walls.

**S.** Rocky slope under Leigh Woods, June, 1849; *Herb. Cundall.* Rocks by the Channel at Sand Point, 1876; *T. F. Perkins.* In 1896 Mr. D. Fry and I explored the rocks and cliffs at the extremity of Sand Point (Swallow Cliffs), where *Trinia* grows very abundantly on the southern slopes. Uphill; discovered there by Dillenius about 1726. It grows on top of the hill above the Quarry, and lower down along the entire extent of the hill wherever the ground is broken by the protrusion of bare rock. Similarly in thin turf on Worle Hill. Purn Hill, Bleadon. Rocks at Hutton Combe, 1874; *Knight's Seaboard of Mendip*, p. 382. Wavering Down. In abundance on Crook's Peak above Compton Bishop! *H. S. Thompson.* Sidcot and Winscombe; *W. B. Waterfall.* Hill slopes above Axbridge, 1883! *Rev. R. P. Murray.*

A monoicous specimen can occasionally be found.

The early notices run as follows:—

First British record:—"Peucedanum . . . I found a root of it at Saynt Vincentis rock a litle from Bristow. But it was nothyng so great as it of Germany."—*Turner, Herb.* ii, p. 83b, (1562).

"Peucedani facie pusilla planta, . . . Quale Bristoia in Anglia ad rupem Vincentii nobis primum magna copia repertam et icone damus."—*Lobel. Adv.* p. 331, (1570).

"The roote is thicker than the smallnesse of the herbe will well beare. Among the people about Bristowe and the rocke aforesaid this hath been thought to be good to eate."—*Gerard, Herb.* p. 897, (1597).

"Peucedani facie pusilla planta, *Lob.* Selinum montanum pumilum, *Clus.* Peucedanum pumilum, aut (quod magis arridet) Petroselinum. *Dwarfe*

*Hogges-fennell* or *Rock-parsley*. On S. Vincent's Rock nigh Bristow."—*Johnson, Merc. Bot.* p. 58 (1634).

The barren plant in its early flowering stage seems to have misled some old investigator who reported to both Gerard and Parkinson that *Meum Mutellina*—a Continental umbellifer—grew at Bristol. The latter herbalist comments:—"Meum alpinum Germanicum illis Muttelina dictum . . . groweth . . . in Austria, and at the bottom of Saint Vincent's Rocke by Bristowe, right against the hot water which is not to be seene but at a low water, as it hath beene affirmed to me by some: but I doubt it will prove *Lobel* his *Peucedani facie pusilla planta*. When it is better growne up with me I shall the better judge of it."—*Theatr. Bot.* p. 889 (1640). Wherein Parkinson once more showed himself to be acute and cautious. See also *Gerard*, p. 895.\*

"In the evening walk to St. Vincent's Rock, find *Peucedanum minus* in full bloom plentifully, just above the Rock house."—*Journal of Sir Joseph Banks*; 26 May, 1767. Noted also by Banks and Lightfoot on their visit in 1773 as follows:—"Peucedanum minus of Huds. on the rocks just above the Wells: vide et compar. *Seseli pumilum* L. Sp. Pl. et *Pimpinella pumila* L. Mant. p. 357 et *Peucedanum minus* Mantiss. p. 219, an non omnes eadem?"

### ÆGOPODIUM Linn.

#### 430. Æ. Podagraria L. Common Gout-weed.

Native possibly in one or two spots; but in most localities it has all the appearance of a survival from ancient cultivation. The usual position is on hedgebanks bordering orchards and gardens: only rarely do we see it far from habitations. Common, and of general distribution about the country villages, especially in North Somerset. June and July.

G. Stapleton. Bitton. Pucklechurch. Almondsbury. Westerleigh. Iron Acton. Wickwar.

S. Abbotsleigh, in several places; also in Sandy Lane and on Failand. Bedminster. Bishopsworth. Dundry. Flax Bourton. Brislington. Pensford. Norton Malreward. Norton Hautville. Publow. Stanton Drew, Stanton Wick, Chew Stoke, Stowey, frequently in profusion; *D. Fry*. Barrow Hill near Clutton: here unusually remote from dwellings. Clevedon. Sandford. Farrington Gurney. Midsomer Norton. Hinton Blewett. Compton Martin and nearly every hamlet at the back of the Mendips. Englishcombe. Combe Hay. Twerton. Wells.

### CARUM Linn.

#### 431. C. Carvi L. Caraway.

An alien casual in this district, occurring in consequence of the extensive use of its seeds in cakes and confectionery, and so likely to be always with us on rubbish tips and house refuse. June and July.

\* A precisely similar suggestion, on the same basis, was made to me in 1910. I was told that "what seems to be a *Meum* grows on Durdham Down."



**G.** On made ground in St. Philip's Marsh, 1905! *Miss Roper*. Several large plants there in 1907. Three in 1908; and a few also in the two succeeding years. One by Hotwells Station, 1911! *Noel Sandwith*.

**S.** Old quarry ground near Twerton, June, 1903! *Miss Martin*.

Is mentioned in a list of Bristol plants of date about 1830.

**432. C. flexuosum** Fr. *Bunium* L. *Pig-nut*.

Native; in pastures and grassy places. Very common. May and June.

The plant is found near Weston-super-Mare with contracted, globose umbels!

*Mrs. Gregory*.

[**C. Bulbocastanum** Koch. *Great Earth-nut*.

In Britain this is confined entirely to the chalk-marl of a few eastern counties. As a casual in other districts it is extremely rare: once found for a single season in a Herefordshire corn-field, but nowhere else in West England that I can discover. Yet, in the anonymous list of "Plants in the vicinity of Bristol" already mentioned (under *Rosa spinosissima*), it is stated that "*Bunium Bulbocastanum*" grew "at Yate to the exclusion of every other plant, in a field where the soil is sulphate of strontian." Although this list appears to have been written by a well-informed botanist of the day, the period was one when collectors' names, dates and other particulars relating to the occurrence of plants, were not regarded as of much importance. No other reference to the true plant is to be found in any local catalogue, notwithstanding that several were put together early in the last century; and no specimen has been met with in collections. Remembering that the name "*Bulbocastanum*" was formerly applied to *C. flexuosum*, not merely by the old herbalists but by Curtis, Withering and others in comparatively recent times; and, moreover, that the root of the Great Earth-nut closely resembles our common Pig-nut, to which indeed the former plant bears a striking general resemblance (*Syme*); we may, I think, believe that it was the latter which really occurred at Yate in such abundance. A similar misnomer is recorded in the *Flora of Middleser*.

The strontian above mentioned is the mineral celestine containing a very high percentage of strontium sulphate. Nearly the whole of the celestine mined at the present day is dug in the Bristol district near Abbotsleigh, Yate and Wickwar; and, with trifling exceptions, is exported to Germany where many thousand tons have been used in the beet-sugar industry. It seems that the only way in which crystallizable sugar can be extracted from impure molasses is by treatment with strontium hydrate.]

[**Bifora testiculata** Roth.

A foreign weed of cultivation, introduced with imported grain. It occurred on waste-heaps at St. Philip's, Bristol in 1904; and in Portishead Station-yard in 1906.]

**PIMPINELLA** Linn.

**433. P. Saxifraga** L. *Common Burnet-Saxifrage*.

Native; on downs and in dry pastures. Very common and very variable.

July to September.

The lower leaflets may be broadly ovate, or pinnatifid, or even once or twice pinnate: the more finely cut form being *var. dissecta* With. The tallest and stoutest specimens I have ever seen (they were two feet high) grew among loose stones on the top of Worle Hill, S.; one of the most barren and unproductive spots imaginable. Luxuriant plants of this description have been mistaken for the Great Burnet-Saxifrage, which does not grow in the district nor in the whole county of Somerset. An article in *Science Gossip*, 1888, p. 259, asserts the presence of *P. magna* on rocks at Clifton, together with two or three other species that are unknown about Bristol.

I understand that *P. magna* has "escaped" into an adjoining hedge from the late Mr. Broome's garden at Batheaston, and made its way thence into a Wild Flower competition.

SIUM *Linn.*434. *S. latifolium* L. *Broad-leaved Water-Parsnep.*

Native; in marsh ditches and rhines; rather rare and local. July and August.

**G.** Shirehampton marshes, 1880. The whole of that neighbourhood has been so greatly altered of late years that I fear the plant no longer exists in the locality. Near Berkeley; *V. R. Perkins*.

**S.** Clapton and Weston-in-Gordano Moors. The Max meadows near Winscombe. Ditches in the Cheddar Valley near Nyeland, and between Cheddar and Wedmore. Weston-super-Mare; *St. Brody* and *T. Allin*. Between Burnham and Brent Knoll. Plentiful on several of the peat moors. "Sub-dominant and abundant on the Levels"; *C. E. Moss*.

435. *S. erectum* Huds. *S. angustifolium* L. *Narrow-leaved Water-Parsnep.*

Native; in lowland ditches and quags, preferring stagnant water. Locally plentiful. July and August.

**G.** Boggy pastures and ditches near Hallen. Marsh ditch near Pilning; *Herb. Powell*. Baptist Mills; *Thwaites* in *Swete, Fl.* and in *Herb. Watson*. In the Boyd stream north of Pucklechurch.

**S.** Bedminster Meads. Swamp in a pasture a mile or more east of Keynsham, between the G.W.R. and the Avon. Rhines below Portbury, and in the Walton valley between Portishead and Clevedon. Ditches throughout the marshlands from Nailsea and Yatton to Weston-super-Mare, Burnham and Wells. Cranmore; *Fl. Som.* Great Elm; *H. F. Parsons*. Frequent in ditches and brooks; *Fl. Bathon*.

BUPLEURUM *Linn.*436. *B. tenuissimum* L. *Slender Hare's Ear.*

Native; on banks of the estuaries and in salt marshes near the Channel. Very local. August and September.

**G.** "Boggy ground at the western end of St. Vincent's Rocks, near Cook's folly."—*Dr. Broughton* in *Withering* (1796). In the meadows below Cook's Folly; *Dr. Dyer's list* in *Shiercliff's Guide* (1809). Bank of Avon below Cook's Folly, Sept., 1863; *Herb. Flower*. Mr. Flower told me that he had seen it also between Sea Mills and the Powder House. At the present time, however, the plant is not known so high up the Avon; but it still grows in the strip of pasture by the river both above and below Shirehampton Ferry. Marsh near Avonmouth Lighthouse, 1849; *Herb. Cundall*. On flats by the Severn west of Hallen Marsh, where tiny plants form glaucous patches in the turf.

**S.** Sea-banks on the Yeo estuary, near Wick St. Lawrence. Mud-flats by St. Thomas' Head and Woodspring Priory, 1880 and at every autumnal visit. Salt-marsh just inside the sea-bank facing Uphill, 1905. In the salt marshes



near Burnham Church; *Sole* in *Collinson's Hist.* (1791). Sea-banks and flats between Burnham and Highbridge, some years in large quantity and well distributed. Steart Island.

[*B. aristatum* *Barlt.*

Casual. Native on the south coast of England and in the Channel Islands. A cornfield weed in Eastern Europe, whence it is rarely introduced with grain. Two plants in St. Philip's Marsh, 1911! *Miss Roper.*]

#### 437. *B. rotundifolium* L. *Thorough-wax.*

Colonist; in cornfields and waste ground. Rare, and uncertain in its appearance. June and July.

**G.** "St. Vincent's Rocks; *Winch*, *MSS.* (Not in Miss Worsley's catalogue)." *New Bot. G.* (1835). Cornfield between Woodlands and Almondsbury, Aug. 1907; *F. Samson*. Several plants on rubbish in St. Philip's Marsh, July, 1891. A good many there in 1901; and a larger number in 1902. About twenty also in 1904.

**S.** Formerly between Leigh Woods and Ham Green; *T. B. Flower* in *Swete, Fl.* Mr. Flower told me in 1880 that the plant had long disappeared from the locality. Portishead Station-yard, 1903 to 1907. In plenty as a garden weed at Ashcombe near Weston-super-Mare, 1903; *Mrs. Gregory*. By the side of the road on the hill going into Hinton; *Dr. H. Gibbes* in *Fl. Bathon*.

Respecting the other localities in *Fl. Bathon*. and its *Suppl.*, Mr. D. Fry wrote in 1887:—"Mr. Skrine's gamekeeper, Walter May, Warleigh Cottages, who shows the Warleigh Woods to those who have permission to go into them, told me that *B. rotundifolium* used to grow at Winsley near Conkwell on the bank of a field known as the "Steert" field, part of a farm of the same name, but he could not say if it still grew at the place. The locality referred to must be in Wiltshire, in which county probably all the Bath habitats for the plant are situate."

"I have sene this herbe growing in great plentye . . . in Somersetshire. . . . I have not sene it in Italye, nether have I heard anye English name of it: saving for lack of other I name it Throw waxe." *Turner, Herball*, iii., p. 56 (1568).

[*B. protractum* *Link.*

With leaves perfoliate like the last but oblong-elongate in shape, and the umbels with fewer rays. An alien cornfield weed from the Mediterranean region, introduced with foreign grain.

About a dozen plants yearly in St. Philip's Marsh, G. And the same quantity in Portishead Station-yard, S., 1906-7. Occasionally met with sparingly on other similar waste ground.]

### CENANTHE *Linn.*

#### 438. *Ce. fistulosa* L. *Common Water Dropwort.*

Native; in marsh ditches and swamps. Very common in rhines throughout the lowlands, from Portishead and Clevedon to the southern limit of the district. Less abundant on the Gloucestershire side; where, however, I have seen plenty in suitable spots about Thornbury, Rockhampton, Hill, the Leechpool and the Yate Rocks marsh. July to September.

**439. *Æ. pimpinelloides* L.** *Callous-fruited Water Dropwort.*

Native; in pastures on the Somerset side of the city. Rare with us, but frequent in central and western Somerset. "Pastures near Bridgwater are sometimes white with the flowers"; *H. S. Thompson*. June and July.

**S.** Bishport; *J. Foster* in *Swete*. In several meadows on the left of the road from Chewton Keynsham to Compton Dando, nearer the latter village! *Journ. Bot.* 1897, p. 124. In June, 1905 I discovered a single plant near the Wansdyke, E. of Ursleigh Hill; others in an old wet grassy lane leading down to the Wells Road; and plenty more scattered over two rough fields adjoining. The plant is also abundant in a pasture on the right of the lane leading from Ursleigh Hill to Publow. Uphill; *W. Christy* in *New Bot. G.* Burnham, Easton, and Wells; *Miss Livett* and *Miss Mayow*. Catcott, and Walton; *Fl. Som.* On the banks of the Canal and in other wet places; *Fl. Bathon.* Dr. C. E. Moss classes it with "characteristic pasture weeds on derelict farms of the peat moor."

This plant produces a remarkable series of leaves, varying greatly in form. The radical rosette quickly withers, and is gone by the time the fruit is set. The species seems to shun the sea-coast of North Somerset—its better-known stations lying well inland. But in Hants and Dorset it is distinctly a sub-maritime plant, and plentiful close to salt water.

It was only in 1844 that *Æ. pimpinelloides* was distinguished from *Æ. Lachenalii* and proved to be a native of this country. It follows that in quite recent times the two species were much confused, and therefore some of our older records may be unreliable. Mr. Flower owned that the plant he gathered by the "River side under Cook's Folly" (*Swete, Fl.* p. 79), was really *Lachenalii*, and it is possible that the Bath records are erroneous in the same way. For it is the latter plant that is partial to "wet places," not the *pimpinelloides*; and, at date of publication, the author of *Fl. Bathon.* could not differentiate the species.

**440. *Æ. Lachenalii* Gmel.** *Parsley Water Dropwort.*

Native; in marshes, chiefly by tidal waters. Frequent on the coast; rare inland. July to September.

**G.** Meadow below Sneyd Park, near the tow-path. Bank of Avon at Sea Mills, sparingly. Shirehampton Marshes. Swamp at the lower side of Siston Common, abundant.

**S.** Bank of Avon opposite Sea Mills. Ditchbanks below Clevedon, and in Kewstoke Bay. Weston-super-Mare. Uphill marshes. Formerly plentiful in the brackish marsh on Berrow sands. Brean, and Lympsham; *Fl. Som.* Not uncommon in bogs around Bath; *T. B. Flower*. On the Canal bank (as *peucedanifolia*); *Fl. Bathon.* The South Wraxall bogs mentioned by Babington are in Wilts.

[*Æ. silaifolia* Bieb? *Æ. peucedanifolia* Poll.

I think it best to strike this out of the Bristol flora altogether. As regards the Somerset station (Yatton) in my earlier book, a gathering of *Silaus* was mis-reported, and the record incautiously accepted by me without demanding a specimen. And, similarly, there are no vouchers for the Gloucestershire localities I published; although that near New Passage was reported by a reputable botanist. The species is unmistakably distinct and good, but has often been confused with other umbellifers by those who have had no opportunity of examining the true plant. I fear there is small prospect of its being reinstated in the future, as no evidence exists of the plant having been found in any part of the county of Somerset or in West Gloucester.]



**441. *Œ. crocata* L.** *Hemlock Water Dropwort. Cowbane.*

Native; on the banks of ditches and streams, in wet hedge-bottoms, and the swamps of low-lying woodland; common and its distribution general. Abundant in wet ditches throughout our Gloucestershire area, from Codrington and Wapley to the Severn flats at Olveston and Aust. Common, too, on the Frome in many spots. On the Somerset side it is plentiful in places like the spring-head above the Abbot's Pond on the way to Failand; in the alluvial lowlands; and in the Lias districts.

July and August.

*Œ. crocata* has frequently attracted attention on account of its poisonous properties. The roots are in clusters of thick, fusiform tubers, roughly resembling the parsrep in some respects. These tubers are specially liable to be eaten, owing to their innocent appearance and not unpleasant taste; and thus numerous cases of fatal poisoning have occurred both among cattle and human beings. This umbellifer is described by Mr. E. M. Holmes (*Pharm. Journ.* 1902, p. 431) as the most dangerous and virulent of all our British plants, since it usually causes death more quickly than aconite.

**442. *Œ. Phellandrium* Lam.** *Horsebane. Fine-leaved Water Dropwort.*

Native; in pools and ditches of stagnant water; very local. July to September.

**G.** In the mud surrounding a pool between Winterbourne Church and the Bradley Brook! 1910; *C. Bucknall*.

**S.** Abundant in marsh ditches throughout the Cheddar Valley; and in great profusion in rhines and pools on the peat moors, where its form is often regularly pyramidal and quite handsome.

Other Somerset localities are the ditches on Walton Moor; Kenn Moor, between Yatton and Clevedon; about the old Weston Junction and Worle Stations; below Uphill; and between Brent Knoll and Berrow.

**443. *Œ. fluviatilis* Coleman.** *Floating Water Dropwort.*

Native; very rare.

July to September.

**S.** In the canal, Bath, 1850; *R. Wilhers* in *Bot. Gazette*. The old coal canal between Midford and Combe Hay, (*Journ. Bot.* 1897, p. 124). Plentiful there until the autumn of 1902, certainly; but the canal locks being ruined and the water lessened in quantity, the plant may not be able to hold its own for any length of time.

This is one of the possibly endemic British species. In my opinion it is decidedly distinct from *Œ. Phellandrium*: the mode of growth and form of the submerged leaves being entirely different. The submersed leaflets of *Phellandrium* are capillary; while those of this decumbent floating plant are broadly linear or wedge-shaped.

**ÆTHUSA Linn.****444. *Æ. Cynapium* L.** *Fool's Parsley.*

Native; in gardens and cultivated fields; very common. July and August.

A common weed in many parts of the city and suburbs, although not much of it may appear in one place. I have often seen it in Victoria Square, Clifton.

Fool's Parsley has for centuries been described as a poisonous plant both in botanical and toxicological works. In 1880 Dr. John Harley's experiments at St. Thomas' Hospital showed that large doses of the juice might be taken by adults without producing any poisonous effect whatever. There is usually, however, some substratum of fact underlying popular beliefs, and a more recent research upon the herb by Dr. Power has demonstrated the existence in very minute quantity of a volatile poisonous principle, identical with that of Hemlock.

### FŒNICULUM Mill.

#### 445. *F. vulgare* Mill. *Fennel*.

Denizen; or possibly native on coast rocks. In most cases it occurs as a survival or straggler from ancient cultivation in localities near dwellings.

July and August.

**G.** Plentiful on St. Vincent's Rocks, where it has been known for more than a century. Here and there along the bank of Avon under the Downs. St. Philip's Marsh, Bristol; and by the river near at hand. On the new railway from Avonmouth to Pilning. Patchway.

**S.** By the railway at Portishead, and about the corn-mill in the Station-yard. Tickenham Hill. Wraxall Hill, and abundant near the Battleaxes Inn. Yatton. Clevedon, in several spots. Brean Down. Rodney Stoke. Wedmore. Many large patches on banks of the Cheddar Valley railway near Axbridge; and on the outskirts of Cheddar village. Burnham and Steart; *J. C. Collins*. Great Elm, etc.; *H. F. Parsons*.

Fennel was formerly in great repute for medicine, sauces, etc.; and for its wholesome edible root; and therefore widely cultivated in this country as it still is in the South of Europe. Although much of its ancient reputation has been lost, the fruit continues in use as a carminative and flavouring. Carried in a small muslin bag, it has recently been highly commended by a distinguished traveller as a satisfactory protection from insects.

### SILAUS Bernh.

#### 446. *S. flavescens* Bernh. *S. pratensis* Besser. *Sulphur-wort*.

Native; in meadows and pastures; common and locally abundant.

June to August.

**G.** Sea Mills. Filton Meads. Pastures adjoining Horfield Common. Plentiful near Brentry and Charlton. Bitton. Patchway. Cribb's Causeway. Tockington. Thornbury.

**S.** Failand. Flax Bourton. Meadows around Dundry Hill. Chew Magna. Norton Malreward. Between Whitechurch and Pensford. Clutton. Yatton. Clevedon. Woodspring and Wick St. Lawrence. The Max Valley below Winscombe. Axbridge. Cross. Easton near Wells.

Curiously absent from Cornwall; much of S. Devon (Briggs never found it within 12 miles of Plymouth); and the southern half of the Isle of Wight.



**CRITHMUM** *Linn.***447. C. maritimum** *L. Samphire. Sampere. "Herbe de Saint Pierre."*

Native; on rocks and other places near the sea; decreasing on our coast.  
July and August.

**G.** One plant on shingly ground below New Passage, 1910; *E. M. Day*. A recent introduction, doubtless. A great bank of shingle was tipped thereabout from the Severn Tunnel works.

**S.** The Battery Point, Portishead, 1880 and subsequently. Shore near Walton-in-Gordano and Clevedon. Kewstoke sands, 1881; and still there in 1896. Swallow Cliffs, Sand Point. Rocks to the north of Weston-super-Mare. Birnbeck Island; *St. Brody*. Brean Down. Sea wall on the coast near Brean. Steep Holm; *T. B. Flower*. Noticed on both the Flat Holm and Steep Holm by Lightfoot in 1773. On the sea-bank at the mouth of the Brue, Burnham.

"Dwelling in the farther of Summersetshyre, not far from the sea syde, I had good plenty of Sampere"; *Turner, Herb.* p. 177 (1551).

Although the product is excellent, as the author can testify, the use of Samphire for a pickle has practically died out. At one time its gathering for that purpose was a regular business, and the plant was held in such esteem that a peck of it was presented to a surgeon as a sufficient fee for setting a broken arm. This is said to be on record towards the end of the 17th century in the parish accounts of Weston-super-Mare.

**ANGELICA** *Linn.***448. A. sylvestris** *L. Wild Angelica.*

Native; in damp and shady places; very common. July to October.  
It flowered on until the end of November in 1908.

Angelica is perhaps the handsomest of our Umbellifers. Book descriptions allow five feet as a maximum height for this species; but with us its stature is often far greater. In Berwick Wood, and other coppices on heavy clay, plants eight or nine feet high are not infrequent; while a stem from Keynsham measured 10 ft. 2 in. It is also the latest: the only species of the order that is conspicuous at the close of harvest.

**PEUCEDANUM** *Linn.***449. P. palustre** *Moench. Marsh Hog's-Fennel.*

Native; only on the peat moors; very rare. July and August.

**S.** Burtle Moor plentifully; *Sole* in *Collinson's Hist.* (1791). Glastonbury and Burtle Moors; *Bot. Guide* (1805). Edington Moor, 1833; *Dr. Gapper*. Burtle Moor, 1852; *Herb. Clark*. Still in fair quantity on Edington, Catecott and Shapwick Moors. But on my last visits there has seemed to be much less than formerly.

**PASTINACA** *Linn.***450. P. sativa** *L. Parsnep.*

Native in some places; in others derived from cultivation. The wild form of the garden Parsnep. Rather common. July to September.

**G.** St. Vincent's Rocks. By the railway near Shirehampton; and under Penpole Point, 1900. About farm buildings at Henbury. Filton close to the village, 1902. Very abundant and apparently native on Dyer's Farm Road near Compton Greenfield; *Miss Roper*. Aust. Eartheott. Chipping Sodbury. Wyck. The Severn flats near Hill and Sheperdine.

**S.** Long Ashton. About a lime quarry on Failand. Abundant in several places at Bishopsworth. Stockwood. Between Whitechurch and Pensford. Grassy roadsides between Publow and Queen Charlton. Norton Malreward; *D. Fry*. A number of plants annually by the railway near Nailsea Station. Yatton. Clevedon. Milton and Worle, frequent. Banks of the Cheddar Valley Railway at Axbridge, Draycott, etc. Wedmore. Uphill. Brean Down, and on the shore thence towards Burnham, in profusion.

**HERACLEUM** *Linn.***451. H. Sphondylium** *L. Cow-parsnep. Hog-weed.*

Native; very common in hedges, field borders and mowing pastures, everywhere. It is also partial to moist tracts in open woodland, especially where the ground has been disturbed. Summer and Autumn.

The form with very narrow leaf-segments (*var. angustifolium* Huds.) has been noted near Providence Place above Long Ashton; at Sandford; to the westward of Mells village; and on hedgebanks near Combe Hay.

A tall, coarse, big-leaved plant, conspicuous in hedgerow and pasture at haying time. Although often very abundant amongst mowing grass, Hog-weed must not be supposed to diminish the value of the crop, for most animals are fond of it and evidently find it to be wholesome and nourishing. The plant contains a certain amount of saccharine matter, which can be fermented or obtained in solid form on drying a sufficient quantity of leaf-stalks.

Concerning weeds in hay, it is probable that the foliage of the more poisonous umbellifers entirely loses deleterious properties in the process of withering, weathering, and undergoing a fermentation in the rick, thus becoming harmless provender; while the aromatic, spicy fruits of some of the species must be attractive and helpful to cattle.

**[H. giganteum** *Fisch.*

An ornamental alien which has been known for fifty years or more about the Great Western Railway at Keynsham and Saltford; but is now disappearing. It occurs also sparingly on both sides of a hedgerow in the lane leading to Bourton Combe; by the footpath from Barrow village to the Church; at Montpelier Station and in a ravine between Mells and Great Elm.]

**DAUCUS** *Linn.***452. D. Carota** *L. Wild Carrot.*

Native; in dry pastures and grassy places; very common. Much too frequent to need an enumeration of localities. June to August.



VAR. **gummifer**. *D. maritimus* With.

Reported from Brean and Brean Down; and accepted as a distinct species in the *Flora of Somerset*. But it does not appear that the author had seen specimens. I have not met with any local plant that I could place here; and my experience of Carrot forms on the south-west coast has led me to believe that *gummifer* is not more than a maritime variety of the type, connected with it by intermediates.

### CAUCALIS Linn.

**453. C. daucoides** L. *Small Bur-Parsley*.

Colonist or alien. On arable and waste land; rare.

June and July.

**G.** By the Avon near Vauxhall Ferry, 1903. And by Cumberland Basin in 1906! *C. Wall*. A dozen or more plants on made ground in St. Philip's Marsh, June, 1901. About the same number appeared yearly until 1909.

**S.** On corn-mill refuse in Portishead Station-yard, 1902 to 1907. Casual at Twerton, 1897; *S. T. Dunn*. Old Down, or Burnt-house Gate, in corn; *Dr. Davis* in *Fl. Bathon*. Cornfields on Kingsdown, Bath; *C. E. Broome* in *Suppl. Fl. Bathon*. Combe Down at 650 feet; *Withers* in *Fl. Som*. Cornfields on Combe Down, June, 1850; *Herb. Flower*. Burnham, 1877; *Miss Mayow*. Once on a bank at Burnham; *H. S. Thompson*.

**454. C. latifolia** L. *Turgenia* Hoffm. *Great Bur-Parsley*.

Colonist or alien; on the same footing as the last species, with which it often grows. Rare.

June and July.

**G.** Harbour railway by the Avon near Vauxhall Ferry, 1903. Site of the new tobacco warehouses by Cumberland Basin, 1905; *C. Wall*. Three or four plants in St. Philip's Marsh, 1901. A larger number there in 1902. A great many more in 1904; after which year the quantity rapidly diminished. Wheatfield, Bitton, June, 1870; *Herb. Jenyns*. Watercress Farm, Baptist Mills, 1911; *I. W. Evans*.

**S.** A plant by the roadside near the Church, Leigh Woods, 1907. Cornfield near Keynsham, July, 1870; *Herb. Flower*. A fine plant in Portishead Station-yard, 1902. And several there subsequently every year until 1909. Old quarry ground, Twerton, 1902! *Miss Martin*. Ashcot! (once found); *J. G. Hickley* in *Fl. Som*.

First British record:—"Caucalis Apij foliis flore rubro . . . found growing in the corne fields on the hills about Bathe by Mr. Bowles."—*Gerard em.* p. 1023 (1633).

[**C. leptophylla** L.

An alien from the south-east of Europe. Introduced sometimes, like its congeners, with imported grain; but more rarely.

**G.** A few plants on made ground in St. Philip's Marsh, 1903. Two there in 1905; and several in 1907.

**S.** Three fine plants in Portishead Station-yard, 1906.]

TORILIS *Adans.*455. **T. Anthriscus** *Gaertn. Upright Hedge-Parsley.*

Native; on field borders, banks and bushy places. Abundant throughout the district. July and August.

456. **T. infesta** *Spr. Spreading Hedge-Parsley.*

Native or colonist; in cornfields. Rare; and scarcer than it used to be, on account of a diminished area of arable land. July and August.

**G.** Formerly in corn near Avonmouth. Cornfields about Horfield; *Swete, Fl.* It still occurs on the Brentry side of Filton Meads. Henbury; *Herb. Powell.* Kingswood, 1882. Border of allotment at Montpelier. Patchway. Winterbourne. Among corn on Ivory Hill near Coalpit Heath.

**S.** Congresbury; *D. Fry.* On mill refuse, Portishead; *Misses Hill and Peacock.* Cornfield near Winscombe, 1881. Weston-super-Mare; *St. Brody.* Near Buckland Dinham; and Beckington; *H. F. Parsons.* Cornfields, frequent; *Fl. Bathon.*

457. **T. nodosa** *Gaertn. Knotted Hedge-Parsley.*

Native; in dry sheltered places. Frequent. May to August.

**G.** St. Vincent's Rocks. Clifton Hill, in a field adjacent to Goldney House; *Miss Roper.* Under shelter of masonry at the Sea Wall. Shirehampton. Stapleton; *Herb. Stephens.* Brandon Hill! Hallen and Severn Beach. Bury Hill, Moorend. Bitton. Wyck.

**S.** Under walls near Rownham Ferry, and roadside thence towards Abbotsleigh. Knowle. Whitechurch. Keynsham; *D. Fry.* Portishead. Walton Hill, Clevedon. Coast near Woodspring. Worle Hill. Anchor Head, Weston-super-Mare. Uphill. Brean Down. Cheddar. Axbridge, Highbridge and Berrow; *Fl. Som.* Easton; *Miss Livett.* Bath; *S. T. Dunn.* Hampton Down; *Miss Peck.* Dry banks, common; *Fl. Bathon.*

SCANDIX *Linn.*458. **S. Pecten** *L. Shepherd's Needle.*

Colonist; on cultivated land; common. June to September.

CHÆROPHYLLUM *Linn.*459. **C. sylvestre** *L. Wild Chervil. Cow-Parsley.*

Native; in pastures, hedgebanks and damp shady places. Very common everywhere. April to June.

460. **C. sativum** *Lam. Anthriscus Cerefolium Hoffm. Garden Chervil.*

Alien or casual on hedgebanks and waste ground. No doubt always derived from cultivation in old gardens, although more used in French cookery than in our own. It seldom maintains itself long in any locality. May and June.



**S.** Casual at Knowle, 1880; *Rev. W. H. Painter*. Roadside bank at Whitchurch; a large patch in June, 1899, but soon afterwards lost; *C. Bucknall*. Plentiful on a bank close to Banwell Castle, 1902-4! *Mrs. Gregory*.

On account of its long fruit this has been mistaken for *Myrrhis odorata* by those unacquainted with the latter plant.

The "popular" comments that follow the description of this species in *Engl. Bot.* ed. iii., ought to have been attached to *C. sylvestre*, and not to *C. Anthriscus* as is directed in the *Errata*.

**461. C. Anthriscus** *Lam. Anthriscus vulgaris Pers. Common Beaked Parsley.*

Native or colonist; under walls, on waste ground and (most frequently) in sandy fields by the Channel. Rare. May and June.

**G.** St. Philip's Marsh; *Herb. Stephens*. Still there in small quantity, 1901 and again in 1906. Under a wall in Mangotsfield village, 1882.

**S.** Upper Knowle, 1879. Waste ground at Portishead, 1906. Portishead Station-yard, abundant in 1909 and 1910. Field adjacent to Kewstoke sands, in plenty for a few yards in 1878; *T. F. Perkins*. None there in 1880, but it reappeared in 1881, and was seen again in 1896 and 1902. Weston-super-Mare, June, 1863; *Herb. Flower*; and *W. B. Waterfall* in *Fl. Som.* Field at Uphill, abundant; *Mrs. Gregory*. Brean Down, 1903. Bank by the roadside at Brean, 1881 and 1902. Sandy banks and enclosures near Berrow Church, abundant in several seasons. Burnham; *Miss Winter*. Roadside close to Highbridge Station, 1888.

**462. C. temulum** *L. Rough Chervil.*

Native; on hedgebanks and in other bushy places. Very common.

June and July.

### CONIUM *Linn.*

**463. C. maculatum** *L. Hemlock.*

Native; in hedge-bottoms, damp wood borders, stream-sides and waste ground; common.

June and July.

**G.** Bank of Avon above and below Bristol. St. Philip's Marsh, abundant. Sea Mills. Between Shirehampton and Avonmouth. Pilning. Iron Acton. Stoke Gifford. Thornbury. Between Charfield and Tortworth. Rockhampton. Berkeley.

**S.** Bank of Avon opposite Sea Mills. Long Ashton. Bishopsworth. St. Anne's Wood, Brislington; usually very fine in marshy ground by the stream. Norton Malreward. Chew Stoke. Nailsea. Yatton. Clevedon. Wookey and Wells. Hedgebanks and waste places, common; *Fl. Bathon*.

### SMYRNIUM *Linn.*

**464. S. Olusatrum** *L. Alexanders.*

Denizen; on rocks, roadsides and waste ground. Generally located near old villages or other buildings. Rather rare.

April to June.

**G.** Abundant over the whole face of St. Vincent's Rocks and around the side of the Observatory Hill. A large quantity at New Passage, near the Hotel. Old Passage, 1873; *Herb. Flower*. Yate Rocks; *F. Samson*. Bushy bank above the old mill-lead at Iron Acton, near an ancient building.

**S.** Roadside near the Battleaxes Inn, Wraxall; and on adjacent hill slopes, in great quantity. Abundant on the beach at Clevedon. Roadside in Worle village. Weston-in-Gordano; *D. Fry*. Uphill. Banks at Milton; *St. Brody*. Milton near Kewstoke, and Winscombe; *Mrs. Gregory*. Field hedge under Mendip between Axbridge and Cross. Hedges near Axbridge; *H. S. Thompson*. Near Great Elm; *H. F. Parsons*. Pamborough; *Miss Livett*.

First British Record:—"Our Alexander groweth . . . in Ilandes compassed about the se, as in a certain Ilande betwene the far parte of Somerset Shere and Wales."—*Turner, Herball* (1562). Noted by Lightfoot in 1773 to be abundant on the Steep Holm, and it was remarkably fine and plentiful there at the date of my visit in 1891.

Mr. Jno. Storrie, in 1872, reported the rather rare fungus *Puccinium Smyrni* to be in splendid condition on leaves of the Steep Holm plant. This is likewise persistent on St. Vincent's Rocks.

Inquiries for the origin of the name "Alexanders" cannot be definitely answered. It appears to be one of the oldest English and French plant-names. "In French, Grand Ache [Great Smallage] or Alexandre; . . . in English, Alexanders."—*Lyte, Dodoens*, p. 608 (1578). *Murray's English Dictionary* traces the word back to the tenth century.

Considered to be native on cliffs of the south coast of England; but in the Bristol district, although so widely diffused, we cannot regard it as more than a naturalized species. For fifteen hundred years or more this was one of the commonest pot-herbs cultivated in gardens. It was much esteemed as a green vegetable, and the root also was served at table. But it has so long been superseded by more excellent food stuffs that its very name is now in danger of being forgotten, and by a confusion of ideas among the ill-informed it sometimes shares with *Apium graveolens* the appellation of "Wild Celery." Thus it came to pass some years ago that a letter appeared in the local press calling attention to a "rampant growth of wild celery on the edge of the Observatory Hill, which has apparently sprung from rubbish thrown out there, and which threatens to kill much of the natural vegetation." Its extirpation was strongly urged. Just at that time an iron fence had been put up at Nottingham Castle for the protection of *Silene nutans* and this *Smyrni*! No doubt "our Alexander" was growing there less plentifully than it does with us. But the point of view from which Nottingham folk regard these things seemed to be a little different from that taken in Bristol. We should welcome a good fence as a timely guard for some of the less robust rarities near our own city: say around that solitary clump of *Scirpus Holoschænus*, or to enclose the main patch of *Allium sphaerocephalum*.



## [CORIANDRUM Linn.

**C. sativum L.** *Coriander.*

An alien casual, springing from kitchen refuse or grain introductions. On waste ground, very rare. June and July.

**S.** Clevedon, on waste ground, 1902 ! *E. Wheeler.* Rubbish heap, Kelston, 1897 ! *S. T. Dunn.* Found by Broome and Jenyns in a field of mangold near the Monument on Lansdown, Sept. 1858. Brean Down ; *Sole* in *Collinson's Hist.* (1791). In Warner's first list of Bath plants (1801) *Sole* gives this species as growing about Dolemead, Bath. Mr. Flower spoke of it as being naturalized on the Steep Holm. I found no specimen in his herbarium ; and, as Mr. Murray has mentioned in *Fl. Som.*, neither he nor I saw any trace of it when we visited the island in June, 1891.]

## HEDERACEÆ.

**HEDERA** Linn.**465. H. Helix L.** *Ivy.*

Native ; very common everywhere on rocks, walls and woodland.

October and November.

On our old limestone walls the Ivy shows great differences in the form of its foliage. Whilst climbing, the plant has small, deeply lobed three-to-five-pointed leaves, but when its support serves it no further the branches shorten and in time form large clustered heads bearing ovate leaves of simple outline. From these heads the flowers appear in abundance. They contain much honey, and attract multitudes of winged insects at a time when little other food is available. On a still, sunny afternoon early in November, should the Indian Summer be in evidence, there are few more pleasant rambles than along the old ivy-clustered lanes about Abbotsleigh and Failand. When climbing trees the Ivy is in no sense a parasite, like the Mistletoe. Any injury done to its host by the tight embrace is purely mechanical. The aerial rootlets are chiefly means of grasping and adhesion, that are not developed when Ivy trails upon the ground. They may certainly imbibe external moisture and so add to the vitality of the plant, enabling it to live for some time after its stem has been severed near the ground, although such severance is inevitably fatal sooner or later.

## CORNACEÆ.

**CORNUS** Linn.**466. C. sanguinea L.** *Dog-wood.*

Native ; in many woods and hedges.

June and July.

Pientiful on Clifton and Durdham Downs ; in Leigh Woods ; and especially frequent in hedgerows of the Chew valley on Lias and New Red sandstone.

## LORANTHACEÆ.

VISCUM *Linn.*467. *V. album* L. *Mistletoe.*

Native. Common in North Somerset orchards, and frequent on a variety of trees in many parts of the district. March to May.

A true parasite, deriving nourishment and power of growth from its host.

The following are among our trees and shrubs that have appeared to produce Mistletoe spontaneously.

Apple. Ash. Aspen. Elm.

Hawthorn (on the Downs; in Shirehampton Park; Filton; *Miss Roper*. Leigh Woods; Chelvey Batch and Brockley Combe).

Common Lime (at Hallen Brook, G.; and at Brockley, S.; *D. Fry*).

Maple (Stoke Park by Stapleton; *W. Christy* in *Bot. Guide*).

Pear. Grey Poplar (Brentry, G.). Black Poplar (common). Sycamore (roadside between Langford and Wrington, S.).

Whitebeam (Leigh Woods; *Swete, Fl.*). Willow (*Fl. Som.*). Robinia (Flax Bourton; *C. E. Moss*).

## CAPRIFOLIACEÆ.

ADOXA *Linn.*468. *A. Moschatellina* L. *Moschatel.*

Native; on moist shady hedgebanks, in deep lanes, and sheltered copse-sides with a warm exposure, where its foliage forms at the end of March a delicate green carpet amid the underwood, before later and more luxuriant wood plants have begun to spring. Rather common. Almost too plentiful to need detailed localities. April and May.

**G.** In Gallows-acre Lane (now Pembroke Road), April, 1849; *J. H. Cundall*. Noted there also by *Swete*. Stoke Bishop. Valley of the Trym below Westbury, in plenty. Two or three small patches in the lane from Filton to Hambrook. Almondsbury. Tockington. Aust. Yate Rocks. The Vineyards Wood, west of Elberton. Abundant along the upper border of Monk's Wood, a mile S. of Cold Ashton. Hedge-banks in the lane leading from Tracy Park on to the slope of Lansdown, and in the woods at "Battlefields," abundant.

**S.** Leigh Woods. Plentiful in St. Anne's Wood, Brislington. Hedgebanks about Abbotsleigh, the slopes of Failand, and on the plateau. Roadside below Clarken Combe, Long Ashton. Yanley Lane. Lanes between Bedminster and Dundry; *J. F. Hopkins*. Very frequent in lanes about Norton Malreward and Stanton Drew; and between Pensford and Publow; *Misses*



*Cundall*. Yatton. Clevedon. Star, near Shipham. Rush Hill, Farrington Gurney. Ston Easton. Shepton Mallet. Wells. Hedge-banks and thickets frequent; *Fl. Bathon*.

When young and moist with dew it has a faint musky smell, from which the name originated. The fruit is scarce and difficult to find, on account of the plant being as a rule completely overgrown and hidden under ranker vegetation before its drupes ripen. In their search for it botanists have varying success. Mr. Purchas wrote that in Herefordshire he had hunted "many years, but in vain, in hope of finding the mature fruit"; while Mr. Briggs at Plymouth talked familiarly of the "peculiar acid taste of the fleshy drupe when ripe at the end of June."

[*Leycesteria formosa*, a Himalayan shrub ("Himalayan Honeysuckle") introduced in 1824.

In the large preserved wood at Shuteshelve near Axbridge, where for many years it has been an object of interest to the gamekeepers and local gardeners who say they know nothing of its origin. Reported in 1906 to have greatly increased. They have it at Bath in the Broome Botanical Garden, and I see that Mr. J. W. Morris, in his Catalogue, remarks—"Pheasants are said to be fond of the fruit, and it is consequently in request for coverts." If that be so the occurrence at Shuteshelve is explained. The shrub is found also in Cornwall in spots where it was never planted, according to Mr. F. H. Davey (*Journ. Bot.* 1907).]

## SAMBUCUS *Linn.*

### 469. *S. Ebulus* L. Dwarf Elder. Danewort or Dane's Blood.

Denizen: on banks, field-borders and waysides near dwellings; very rare.

August and September.

**G.** Near Sea Mills; *T. B. Flower* in *Phytol.* I, p. 68. This, I believe, has never been confirmed. Hedges on the north side of Trooper's Hill; *Herb. Stephens*. Netham, near Crew's Hole; *Swete, Fl.* These records refer to the same locality near the bottom of Trooper's Hill Road where the plant still exists. Along a hedge and ditchbank under Ivory Hill by the Yate Road for about forty yards; flowering but little in 1910. Doynton; *Dr. Davis* in *Fl. Bathon*. Dursley; *Mr. Dyer* in *Bot. Guide*. Roadside between Hawkesbury and Hawkesbury Upton, thickly for about 50 feet along the top of a high grassy bank outside the fence of an orchard! I became aware of this locality by finding the plant mentioned in the account of an excursion of the Cotteswold Field Club from Wickwar to Hawkesbury (*Proc.* vol. 15, part iii).

**S.** A small patch in the angle of a lane leading from Portbury to Upper Failand. In flower there in 1908. Eradicated shortly afterwards by "Nature Study" pupils.—*Misses Hill and Peacock*. "Hedges and orchards about Chew Magna, used to rub the floors of cheese lofts: the peculiar odour of the plant is supposed to destroy mites"; *Stephens Cat.* (1835). That idea is supported by Woodville, who writes:—"The odour of the green leaves drives away mice from granaries, and the leaves are strewed where pigs lie, in order to prevent some of the diseases to which those animals are liable." I cannot learn if the plant still grows at Chew Magna. Mr. David Fry did not meet with it during his residence at the neighbouring village of Stanton Drew. Compton Bishop, 1885; *W. E. Green*. Vobster near Radstock; *T. F. Inman* in *Fl. Som.* Charlcombe;

*Dr. Davis* in *Fl. Bathon.* Claverton Wood; *T. B. Flower* in *Fl. Som.* Several stations to the east of Bath are given in *Fl. Bathon. Suppl.*

Professor Babington evidently considered this species to be a native of Britain, while Watson classed it among denizens. If judged by Bristol localities the latter opinion—shared by the author of the *Flora of Somerset*—must be held correct. The plant has been used in medicine from ancient times, and is still to be found with some herbalists. Wherever met with by me it seemed always to be confined to a small area, with an appearance decidedly suggestive of its having been introduced.

The “Dwarf Elder” of the United States is a very different plant (*Aralia hispida*). Such instances of confusion as are found to exist between British and American shrubs and flowers are probably due to mistaken attempts by the earlier colonists to apply popular names from the old country to plants of the New World.

#### 470. *S. nigra* L. *Common Elder.*

Native; in hedges and woods; very common. June and July.

The inflorescence is sometimes visible at the middle of February, looking like a little cauliflower surrounded by its tuft of young leaves.

#### VAR. *laciniata* L.

“*Sambucus foliis laciniatis* . . . Near Bristol; *D. Jollif.*”—*Merrett, Pinax* p. 109 (1666). This record was copied verbatim by Ray in the *Synopsis*. Or, it may be that Jollif gave it to both authors. An introduced plant at best, about which nothing more can be learnt.

### VIBURNUM Linn.

#### 471. *V. Lantana* L. *Mealy Guelder-rose. Wayfaring Tree.*

Native; in dry woods, hedges and thickets. Very common where the soil is calcareous: less frequent on other formations. May and June.

Although so frequent in many limestone districts this shrub is often local in its distribution. It is of rare occurrence in West Somerset, Devon and Cornwall, and appears to be almost absent from North Britain.

#### 472. *V. Opulus* L. *Common Guelder-rose.*

Native; in low and moist woods and hedges, and by streamsides; common. June and July.

**G.** Between Shirehampton and Avonmouth. By the Trym below Westbury. Berwick Wood near Hallen. On both banks of the Frome in many places, from Stapleton to Frampton Cotterell and Iron Acton. Westerleigh. Yate. Charfield. Woods near Wotton-under-Edge.

**S.** Leigh Woods, in several spots. Meadows below Long Ashton. Frequent in hedges about the “Wild Country” between Yanley Lane and Barrow Gurney. Near Chew Magna, Dundry, Stanton Drew and Clutton; *D. Fry.* Yatton. Kenn. Clevedon. Weston-in-Gordano; *D. Fry.* The



Wrighton Valley. The Max meadows below Winscombe. Between Cheddar and Axbridge. Cranmore and Asham Woods; *Fl. Som.* Radstock. Mells. Plentiful about Wells; *Miss Livett*. Frequent near Bath; *Fl. Bathon*.

The "Snowball" tree often seen in shrubberies is a cultivated variety of this species in which, instead of there being merely an outer fringe of radiant barren flowers, all are enlarged and barren. Consequently the handsome globular masses of blossom do not produce any berries.

## LONICERA Linn.

[*L. Caprifolium* L. *Perfoliate Honeysuckle*.

An escape from cultivation, mentioned in *Fl. Bathon. Suppl.* etc., and still found in the Brass Knocker Wood.]

### 473. *L. Periclymenum* L. *Common Honeysuckle. Woodbine.*

Native; in hedgerows and bushy places; common and generally distributed.

June to September.

The so-called "Oak-leaved Honeysuckle," with sinuate leaves, is not a distinct form or variety but depends on a peculiarity of the young leaves, which are often lobed, while those on the older shoots are entire. It has been pointed out to me that the lobed leaves do not all disappear as the season advances, but can be found in August.

[*L. Xylosteum* L. *Fly Honeysuckle*.

Alien; in hedges, woods etc. I suppose always planted originally, and now naturalized in a few places. I have seen it in several hedgerows and plantations.

Blaize Castle Woods, 1834; *Herb. Powell*. Leigh Woods; *T. H. Yabbicom*.]

[*Symphoricarpos racemosus* Michx. *Snowberry*.

A North American shrub, that has spread from cultivation but appears to be of very old standing in some of our hedges.

**G.** Warmley. Wyck. Pasture hedge on the roadside between Alveston and Buckover, for 30 yards or so. Hedge by the high road on Thornbury Hill.

**S.** Several bushes by a stream above the reservoir in Water Lane, Portbury. Bourton Combe. Hedge on the Wells Road a little south of Whitchurch, and in one or two other spots in that vicinity. On high ground (nearly 400 feet) between Whitchurch and Woollard, at a spot where the lane forks, there are pasture hedges consisting entirely of this shrub for 500 yards or more. It has formed a great thicket by the stream in the Oakford Valley, St. Catherine's, Bath.]

## RUBIACEÆ.

### SHERARDIA Linn.

#### 474. *S. arvensis* L. *Blue Field Madder*.

Native; on cultivated and waste land, and in the dry turf of limestone hills to a considerable elevation. Very common. May to July.

With white flowers on open ground at the top of Strawberry Hill, Clevedon.

A very tiny, unbranched state of this species is common in thin turf over rock on our Downs and on the slopes of Mendip—exposed spots where the soil is poor and scanty. Mr. Pugsley has called attention to this form in *Journ. Bot.* 1906, p. 395.

First local record:—"I have sene the herbe . . . diverse tymes in the hills about Welles in Summersetshyre."—*Turner, Herball* (1551).

### ASPERULA *Linn.*

#### 475. *A. cynanchica* L. *Quinancy-wort.*

Native; in dry, open, hilly pastures, chiefly on limestone. Frequent, but local. June and July.

**G.** Pasture above Wotton-under-Edge, abundant; *L. W. Rogers*. By the Whiteway near Dursley; *Miss Gingell*.

**S.** Hills at Clevedon. Banwell Hill. On Mendip near Ebbor Rocks; above Draycott; Woodborough Hill and Sidecot. Downs above Bleadon; *E. S. Marshall*. Wavering Down and Crook's Peak; *Mrs. Gregory* and *C. Bucknall*. Plentiful on Worlebury Hill, Weston-super-Mare. Near the Grenville Monument on Lansdown; very small plants. Abundant on Hampton Down and other hills near Bath.

#### 476. *A. odorata* L. *Sweet Woodruff.*

Native; in damp woods and bushy places. Rather generally distributed in North Somerset; but I have only a few records for Gloucestershire.

May and June.

**G.** Sparingly under bushes on Clifton Down. Cook's Folly Wood; *J. Foster* in *Swete*. Between Milbury Heath and Thornbury. Abundant in the woods above Wotton-under-Edge and Dursley. Wood near "Battlefields" by Lansdown; *Miss Roper*.

**S.** Leigh Woods. Coppices on Failand. Bishport Wood. Charlton Woods above Portbury. Portishead, and along the wooded ridge above Weston-in-Gordano. Limeridge Wood above Tickenham. Abundant in one part of Featherbed Lane, and in a wood between there and Stowey; *D. Fry*. Coppices under Maes Knoll. Woods near Yatton and Congresbury. Churchill. Hutton; *Dr. St. Brody*. Ubley and Asham Woods; *Fl. Som.* Common near Wells; *Miss Livett*. Fortnight and Combe Hay. Frequent near Bath; *Fl. Bathon*.

#### [*A. arvensis* L.]

Alien; introduced from the East. A cornfield weed in many wheat-growing countries. Although noticed in England more than 200 years ago it is still of rare occurrence, and evidently is unable to maintain itself without reinforcement in any British locality.

**G.** Sparingly on made ground at St. Philip's, Bristol; yearly from 1900 to 1909; but in 1911 it appeared in larger quantity, a few of the plants having white flowers. Among oats near Winterbourne, 1902.

**S.** Portishead Station-yard, 1904 to 1909; not more than half a dozen plants yearly. Easton-in-Gordano, 1908; *Miss Roper*. Casual at Twerton, 1897-8; *S. T. Dunn*. In a clover-field near Combe Hay, 1902.]

### GALIUUM *Linn.*

#### 477. *G. Cruciata* Scop. *Crosswort.*

Native; on hedgebanks, field-borders and riversides. Abundant in many places on the Somerset side of the district, but much scarcer in the northern division. May and June.



**G.** Riverside quarry under the Downs, 1911. Sea Mills; *Swete*, *Fl. Shirehampton*. Hedgebanks about Horfield; *Dr. H. O. Stephens*. Field-border between Filton and Stoke Gifford. By Berkeley Road Station; *Miss Roper*.

**S.** By the riverside under Leigh Wood; known there many years. In Sandy Lane near the Tan-pits. Plentiful between Brislington and Keynsham. Avon-bank above Saltford. On both banks of the Chew here and there from Compton Dando to Pensford and Stanton Drew. About Chew Magna and Dundry Hill. Chelvey Batch and Backwell Hill. Coast path between Portishead and Clevedon; *H. J. Wadlow*. Abundant on hedgebanks at Brockley and Claverham. Weston-in-Gordano. Clevedon. Congresbury; *D. Fry*. Winscombe. Brean Down; *St. Brody*. I saw it there in 1886. Cheddar; Ebbor and West Harptree; *Fl. Som.* Abundant at Mells, Great Elm and Buckland Dinham. Dinder, near Wells; *Miss Livett*. Frequent about Bath; *T. F. Inman* and *Fl. Bathon*.

**478. G. tricornes Stokes.** *Rough Corn Bedstraw. Three-flowered Goose-grass.*

Colonist; in cultivated fields and on waste land; rather rare. June to August.

**G.** Waste ground, St. Philip's, Bristol, 1904. About an old colliery heap near Kingswood, 1880 to 1886. Cornfields at Pucklechurch; *Swayne* in *Withering*. Charlton. Stapleton and Horfield; *Herb. Stephens*. By Stapleton Road Gas Works, 1911. Cornfield between Horfield Common and Filton Meads, abundant in 1883 and 1885 on land that has now gone out of cultivation. Still among crops by the field-path from Filton Meads to Brentry and Charlton. Plentiful in stubble on Ivory Hill north of the Badminton railway, Sept. 1906. Between Alveston and Gaunt's Eartheott, 1908. Cornfields at Stover, north of Yate.

**S.** Near the Tan-pits, Failand; *D. Williams*. Cultivations between Stockwood and Keynsham, 1886 to 1900. Barley-fields between Stanton Drew and Knowl Hill; and between Corston and Burnet; *D. Fry*. Houndstreet; *Miss Roper*. With peas and vetches near Clutton, 1887. Field of green fodder at Wraxall, 1906. Weston-in-Gordano; *C. Bucknall*. Brean Down; *St. Brody*. Arable fields on Lansdown, noticed there during many years by the Rev. L. Blomefield and others: last seen by me near the Grenville Monument in 1900. Batheaston; *T. F. Inman* in *Fl. Som.* Claverton Down; *Fl. Bathon*. Combe Hay. Twerton; *S. T. Dunn*.

**479. G. Aparine L.** *Goose-grass. Cleavers.*

Native; in hedges and thickets, and upon cultivated ground. A very common weed.

June to August.

In damp shade it sometimes trails over bushes to a great length. I have seen stems 12 feet long in such situations.

**480. G. Vaillantii DC.** *Hispid-fruited Corn Bedstraw.*

Alien or colonist; very rare. An inconstant weed of cultivation, that has soon died out from the localities where it has been observed.

It is of slender habit and low stature, to be readily distinguished from *G. Aparine* by its small greenish flowers and fruit not more than half the size.

June and July.

**G.** Abundant on made ground in St. Philip's Marsh, Bristol, June, 1904. The year following there was a much smaller quantity, and after that the plant was not again seen.

**S.** Casual near Twerton, 1897; *S. T. Dunn*.

**481. *G. erectum* Huds. Upright Bedstraw.**

Native; on dry, hilly pastures and banks; very rare.

June and July.

**G.** Open stony ground near the top of Breakheart Hill, Dursley; in plenty. Discovered there by me in August, 1902, and published as a new county record in *Report Bot. Ex. Club* for that year. But in 1907 I found specimens in Dr. St. Brody's Herbarium from "Heath near Dursley, June, 1864." My discovery had thus been anticipated nearly forty years. Abundant on a sandstone bank in the Frome valley within a mile of Iron Acton.

**S.** In a rough pasture at Dunkerton (near the tulip-fields), June, 1906! *Miss Livett*. In rich pastures under Claverton Down; *Fl. Bathon*. This last record is not accepted in *Fl. Som.* nor in *Topogr. Bot*.

This is rather a difficult species to understand and separate from *G. Mollugo*, and that may be partly the reason why it is so seldom reported. But there is at least one marked distinguishing feature—it flowers quite three weeks before its near relative. At Iron Acton the plant was in full fruit before *Mollugo* began to flower. *G. erectum* is of smaller stature, seldom exceeding two feet. The longer stems may have one or more spreading-erect branches in the lower half, while smaller specimens are simply and narrowly pyramidal. The lanceolate or linear-oblong leaves, as well as the panicle branches and pedicels, are all ascending. Corolla larger than in *Mollugo*, with less distinct apiculi.

[**G. anglicum** Huds. Stated in the *Flora Bathoniensis* to have been found at Charlcombe. As suggested by Mr. Murray (*Fl. Som.* p. 178) this was very likely a misnomer. It happens, however, that the late Mr. T. B. Flower, writing to me in June, 1883, mentioned having found the plant "a few days since, on old walls near Bath." Yet I saw no local specimen in his herbarium. Nor can I recollect conversing with him on the subject.]

**482. *G. Mollugo* L. Great Hedge Bedstraw.**

Native; in hedges and thickets. Very common.

July and August.

VAR. **insubricum** Gaud.

**S.** Abbotsleigh; *C. Bucknall*. Weston-super-Mare, 1893; *Mrs. Gregory*. Burrington Combe; *C. Bucknall*.

VAR. **Bakeri** Syme.

**S.** Hillside above Axbridge; *J. G. Baker* in *Fl. Som.* In Cheddar Gorge, very sparingly; *Rev. E. S. Marshall*.

**483. *G. verum* L. Yellow Bedstraw.**

Native; in dry, open pastures. Abundant on the Downs near Bristol, and common throughout the district. Conspicuous in the sandy turf of the North



Somerset coast-line, and in the higher Mendip pastures, where it stands first among the Bedstraws in order of abundance. The dwarf, branched form of our seaside sand-dunes often corresponds to the *VAR. maritimum* DC.=*VAR. littorale* Brébisson. July to September.

*VAR. OR HYBR. ochroleucum* Syme non Kit.=*G. vero-mollugo* Wallroth; *G. decolorans* Grenier et Godron.

**S.** In roadside turf near the top of Belmont Hill, Failand; *Miss Roper*. Similarly on the grassy waste of Beggar's Bush Lane; *C. Bucknall*. In both instances a patch of about a yard, and near the supposed parents at each spot. The two growths do not exactly correspond; one being nearer *Mollugo* than the other. Both however are decidedly on the *verum* side. These plants certainly appear to be crosses between *verum* and *Mollugo*. I could not find a single good fruit on stems gathered near the end of September; nothing but abortive ovaries. The specimens agree well with examples gathered abroad, but I have sometimes doubted if the Continental plant (*decolorans*) be really a hybrid, for it is of general distribution in Southern Europe, and often grows where neither of the supposed parents can be seen. But I have not had an opportunity of searching for the fruit in late summer.

As regards the varying forms of this hybrid, it is not unusual for two closely allied plants to produce a series of crosses in which sometimes the characters of one parent, and sometimes those of the other, predominate. On the Continent, at least six plants intermediate between *G. verum* on the one hand and *G. Mollugo* (aggregate) on the other, have been described and named. These represent so many points or stages along the line of characters connecting the species concerned. Some of them may have arisen from fertilization of the primary hybrid by one or other of the parents, a process capable of producing infinite shades of variation.

The Yellow and Hedge Bedstraws are especially associated with the wayside strips of turf that border many of our upland roads upon oolite or limestone, where the width from fence to fence is (by old statute) greater than the traffic requires. These roadside wastes are choice features of the country wherever they remain, being usually sprinkled with all the representative flowers and grasses of the localities. Unluckily, of late years a decentralized rural government has thought fit to mow and trim these flowery edgings in many districts, presumably with a view to formality and tidiness. No doubt employment is thereby provided, and the rates are increased; but many of us will consider our country roads to be more attractive, as well as more economical, in their natural condition. Moreover, there have been instances in which the sole county station for a rare plant has been entirely destroyed by this mistaken action of a parochial council.\* It is difficult to reconcile oneself to the idea that the loss and damage here depicted are inevitable and beyond control.

#### 484. *G. saxatile* L. Heath Bedstraw.

Native; on commons, heaths and dry moory tracts. Formerly abundant

\* *Proc. Cotteswold Nat. Field Club*, 1903, p. 268.

on the Downs, and is common in similar situations throughout the Coal-field district. June to August.

**485. *G. umbellatum* Lam.** *G. pusillum* Sm. *G. sylvestre* Poll.  
*Mountain Bedstraw.*

Native ; on some high and rocky slopes of the Mendip Hills. Rare and local.  
June and July.

**S.** Plentiful in Cheddar Gorge. Abundant on high rocks above Draycott (700 to 850 ft.), and occurs here and there on limestone outcrops of the table-land towards the head of Cheddar Gorge ; *Rev. E. S. Marshall*. Ebbor ; *Rev. D. Robertson* in *Fl. Som.* Between Shipham and Rowberrow.

In Shiercliff's Guide for 1789 this (as *G. montanum*) is said to have grown on "St. Vincent's Rocks near Clifton Turnpike." And in *Bot. Gaz.* vol. ii, p. 95, it is stated that Borrer got it on St. Vincent's Rocks. The plant is credited to West Gloucester in *Topogr. Bot.* on the authority of "Borrer, MS." I have not heard of a specimen from the locality, nor have I a more definite record.

**486. *G. uliginosum* L.** *Rough Marsh Bedstraw.*

Native ; in wet pastures and swampy ground. Rather common.

June and July.

**G.** In the Trym valley below Westbury. Hallen Bog ; *C. Bucknall*. By the Stoke and Bradley Brooks. Boggy ground by Yate Rocks ; *Miss Roper*. Near Tortworth. Streamside between Wapley and Codrington. Roadside pools near Elberton and Ingst. The Leechpool. Yate Lower Common. Falfield.

**S.** On the Avon bank near Rownham. Ditchbanks below Long Ashton. Marsh between Wraxall and Tickenham. Wet hillside between Ursleigh Hill and Pensford. Swamp by the Chew above Pensford ; and in another near Litton ; *D. Fry*. Peat ditches in the Walton valley below Weston-in-Gordano. Uphill ; *T. F. Perkins*. Several patches among the sand-hills north of Burnham. Easton moor near Wells ; *Miss Livett*. Burtle Moor ; *H. S. Thompson*. Sparingly in a boggy rill on Hampton Down, Bath ; *A. E. Burr*. A locality near the last is recorded in *Fl. Bathon*.

**487. *G. palustre* L.** *Water Bedstraw.*

Native ; very common in wet places and generally distributed.

July and August.

VAR. **Witheringii** Sm.

**G.** Filton Meads ; *Sweete, Fl.* Shirehampton Marshes. By the Frome near Stapleton, Frenchay, and Iron Acton.

**S.** In a damp lane between Stanton Drew and Pensford ; *D. Fry*. Hedge-bottom north of Publow. Uphill ; *E. S. Marshall*. By the canal, Bath ; *E. Simms* in *Fl. Bathon*. Wick St. Lawrence ; *Miss Roper*.

VAR. **elongatum** Presl.

**G.** Wotton-under-Edge ; *C. Bucknall*.



**S.** Pond at Kenn; *Miss Livett*. Frequent in the moor ditches of the Nailsea and Walton valleys and on the peat moors.

### RUBIA *Linn.*

#### 488. *R. peregrina* L. *Wild Madder*.

Native; in woods and rocky thickets, frequent on the Carboniferous Limestone. June to August.

**G.** Plentiful about St. Vincent's Rocks, Clifton Down, and in thickets along the limestone as far as Cook's Folly Wood, where it comes to an end. Many of the old botanical writers, including Ray, Hudson, Banks and Lightfoot, mention its occurrence at Clifton. Goram's Chair, Blaize Castle.

**S.** Leigh Wood. "It grows out of the Rocks on both sides of the River"; *Banks and Lightfoot* (1773). Wood opposite St. Vincent's Rocks; *Withering* (1796). Flax Bourton. Charlton Woods, Portbury. Portishead Woods, and abundant along the coast-line to Walton and Clevedon. The Walton valley. Cadbury Camp. Backwell Hill. Brockley Combe. The Rectory Woods and West Hill, Wraxall. Woodland near Yatton and Congresbury. In many hedges about the head of the Wrington Valley. At "Barley Wood." Churchill; Axbridge; Butcombe and Blagdon; *Fl. Som.* Brent Knoll; *D. Fry*. In the wood at Weston-super-Mare, and on the Kewstoke side also. Pen Knowle, Wookey; *Miss Livett*.

Earliest local record:—"Mr. George Bowles found it growing wilde on Saint Vincents Rock" . . . *Gerard em.* p. 1120 (1633).

### VALERIANACEÆ.

#### KENTRANTHUS *Neck.*

#### 489. *K. ruber* DC. *Red Valerian*.

Alien; thoroughly established on cliffs, old walls and rocky banks about Clifton, Bristol, and other towns and villages in the district. Rather common.

It flowers throughout the year save for the depth of winter. Buds were well formed at Tockington in February, 1906; and in the same month there were expanded flowers at Axbridge, where bloom continued until the middle of November.

**G.** Cornwallis Crescent, Clifton. Quarries along the Avon under the Downs. Abundant near Stapleton and Frenchay. Almondsbury. Tockington. Aust. Tytherington.

**S.** Old walls and rock behind Portishead village. Plentiful about the great quarry at Backwell Hill. Yatton and Congresbury. Rocks and quarries at Clevedon, abundant with both deep red and pink flowers; *D. Fry*. Churchill.

Sidecot. Conspicuous along the Cheddar Valley railway near Axbridge. Rocks and walls about Cheddar. Hutton. Bleadon. Worlebury Hill and elsewhere near Weston-super-Mare. Brean Down. Glastonbury Abbey. Wells. In a few places about Bath; *Fl. Bathon.*

The only station given for this as a Bristol plant by Dr. Stephens in his list dated 1835 is "Walls about the Old Passage." Possibly it was scarcer then than now. At present it is a rare plant in our Northern counties, although in the South it has a history of three centuries at least.

The *Engl. Bot.* figure was drawn from a specimen collected by James Sowerby on the Abbot's Kitchen, Glastonbury Abbey.

### VALERIANA *Linn.*

**490. *V. officinalis* L.** *V. offic.* VAR. *Mikanii* Syme. *Mikan's Great Wild Valerian.*

Native; on dry hillsides. Rare, or overlooked. June and July.

**G.** Tortworth. Hills above Wotton-under-Edge and Dursley.

**S.** Limestone slopes under Leigh Wood in the Avon Gorge. In the Wrington valley about Ubley and Burrington. Plentiful about the cliffs at Cheddar and on rocks near Charterhouse. High ground above Murdercombe near Mells. Hollow lane on the ascent to Portishead Down. Portishead; *G. C. Druce* in *Fl. Som.* St. Catherine's, Bath; *S. T. Dunn.*

**491. *V. sambucifolia* Mikan.** *Common Great Wild Valerian.*

Native; in damp woods, meadows, and by ditches and streams. Common throughout the district. June and July.

There have been marked differences of opinion among systematists respecting the characters and grade of the two forms of *Valeriana*. That the subject is a critical one is amply shown by the diverse judgment of Dr. Boswell Syme and Mr. Archer Briggs on the one hand; and of Messrs. Beeby, Townsend and Wenderoth on the other. The former failed to separate the plants: the latter pronounced them to be distinct species. The German botanist indeed went so far as to say that he could discriminate between them at a distance by the direction and colour of the leaves. I have seen both cultivated in gardens by Mr. David Fry and at University College, Bristol; and have grown them myself. My conviction is that they are good species. The whole question has been ably analysed by Schlechtendal (*Bot. Zeit.* 1847), by Beeby (*Journ. Bot.* vol. 26, 1888), and by Drabble and Smith (*Pharm. Journ.* 1904, p. 701). *V. sambucifolia* is a robust plant, bright clear green in tint, that flourishes in almost any kind of soil, wet or dry. It grows vigorously on two sandstone rockeries in Clifton. The leaves have erect or suberect petioles, with few (thirteen or fewer) rather broad leaflets usually toothed on both edges, and with the toothing directed outwards. *V. Mikanii* is of slighter build, with an aspect somewhat dark and bluish-green. The petioles spread horizontally, and bear narrower and more numerous—sometimes so many as nineteen—leaflets which are



usually toothed on the posterior edges only. This species is more tender and particular regarding soil. With us it occurs only on limestone and oolite, and twice I have known it to disappear after cultivation for a year or two on other formations. Its root contains far more of the odorous principle of Valerian, and it is the kind grown in Derbyshire for medicinal use.

**492. *V. dioica* L.** *Small Marsh Valerian.*

Native; in marshes and boggy meadows; rather common and well distributed. May and June.

**G.** Baptist Mills, 1842; *Thwaites* in *Herb. Watson*. Ashley Vale; and Horfield, 1851; *Herb. Cundall*. Marsh at the Boiling Well under Ashley Hill. Hallen Marsh. By the stream under Yate Rocks; *Miss Roper*. Abandoned quarry between Chipping Sodbury and Wickwar; *C. Bucknall*. Near Wotton-under-Edge; *V. R. Perkins*. Dursley.

**S.** Leigh Wood, in a boggy dell leading down to the Avon. Bedminster Meads, 1880. Upper Failand. Portbury, several large patches near the railway; *Misses Hill and Peacock*. Barrow Gurney. Marsh under the hill between Wraxall and Tickenham. Yatton Moor. Norton Hautville. Pensford. The Walton Valley. Wrington. By the Yeo reservoir; *Dr. Gough*. Litton. East Harptree; *Herb. Lawrence*. Boggy fields at Max, below Winscombe; and near Churchill. Wells. Frequent on the south-east border of the district, and on the peat moors. Combe Hay. Fortnight Farm. Common in swampy places; *Fl. Bathon*.

**VALERIANELLA** *Mill.*

**493. *V. olitoria* Poll.** *Lamb's Lettuce. Corn-Salad.*

Native; on earthy banks and cultivated land. Rather common.

May and June.

**494. *V. carinata* Loisel.** *Carinated Lamb's Lettuce.*

Colonist; on banks and walls; very rare.

April to June.

**G.** On a wall at Brentry, 1902! *T. Hunter*.

**S.** Rocks near Birnbeck, Weston-super-Mare; *Mrs. Gregory*. Edges and sides of an old pit or quarry between Hampton Rocks and Claverton Down, Bath. Discovered by the Rev. W. O. Wait in 1887. Mr. Burr showed me specimens the year following. In 1889 Mr. D. Fry reported on the plant that it looked native; was plentiful; and appeared to be spreading.

**495. *V. rimosa* Bast.** *V. Auricula* DC. *Sharp-fruited Lamb's Lettuce.*

Colonist; on cultivated land; very rare.

July and August.

**G.** "Henbury, in small quantity"; *T. B. Flower*.

**S.** Eastwood, Brislington, no date; *Herb. Stephens*. In an arable field between Keynsham and Stockwood, August, 1886; *D. Fry*. In considerable abundance at that time. Garden weed at Bath, 1893; *Herb. Dunn*.

**496. *V. dentata* Poll.** *Narrow-fruited Lamb's Lettuce.*

Colonist; on hedgebanks and in cornfields; frequent. June and July.

**G.** In plenty by the towing-path near Sea Mills in 1880, and several times since; but not seen lately. Henbury. Horfield; *G. H. K. Thwaites*. Netham; *Swete, Fl.* Filton Meads! *Miss Roper*. Cornfield on Ivory Hill, 1909-10.

**S.** Bank of Avon below Rownham; *Stephens Cat.* Confirmed by *Swete in Fl. Brist.* Cornfields near Abbotsleigh and Failand. Between Keynsham and Stockwood; and among vetches by Featherbed Lane between Stanton Wick and Clutton; *D. Fry*. Queen Charlton. Field near the top of Wraxall Hill. On Weston Lodge Farm above Weston-in-Gordano. Weston-super-Mare and Brean Down; *Dr. St. Brody*. Uphill. Twine Hill, near Wells; *Miss Livett*. Prior Park! and several other localities near Bath; *Miss Peck* and *Fl. Som.*

VAR. *mixta* *Dufr.*

**G.** Field near Dursley, July, 1865; *Herb. St. Brody*.

**S.** Near Midford Castle; *R. C. Alexander* in *Fl. Som.* Berkley near Frome; *H. F. Parsons*.

[**V. eriocarpa** *Desv.*

**G.** Casual at St. Philip's, Bristol, 1904! *C. Bucknall*.]

## DIPSACACEÆ.

DIPSACUS *Linn.***497. *D. sylvestris* Huds.** *Wild Teasel.*

Native; on the borders of fields and moist woods, roadsides and ditchbanks. Common. August and September.

[**D. Fullonum** *L.* *Fullers' or Clothiers' Teasel.*

Alien; occurring occasionally as a relic of cultivation on hedgebanks and field-borders; but becoming rarer as the Teasel is less and less grown. It is now therefore very seldom met with. Indeed the singular fact was noted by Dr. Knapp that although the seeds were formerly swept from the barns where the heads were dried, and scattered in profusion on dungheaps etc., where they vegetated freely, yet he never observed the plant to become established in the surrounding hedges. Still, he was aware that it did stray and appear as a wildling in some places at the time he wrote.

**G.** Horfield; *Herb. Stephens*. Near Aust; *Mrs. Lainson*. Waste ground, Frampton [Cotterell], July, 1866; *Herb. St. Brody*. Frampton Cotterell, 1907; *Miss Cockle*. Near Patchway, 1899; *Miss Roper*. Border of a clover-field at Watley's End, 1907. Wickwar.

**S.** Roman Camp, Leigh Woods, 1853; *Herb. Flower*. Near Dundry; *W. E. Green*. By Worle Hill, 1854; *Rev. L. Jenyns*. Weston-super-Mare, 1854; *Herb. Jenyns*. Weston-super-Mare and Shapwick, 1859; *Herb. Clark*.

*The Journal of a Naturalist*, ed. iii, pub. 1830, contains an interesting account of the cultivation of Teasels in the neighbourhood of the author's residence at Thornbury towards the beginning of the last century. His remarks may be worth quoting, relating as they do to an important local industry; which, though dying hard, is now at the point of extinction.

The weaving of woollen cloth by Flemish artisans was established in England in the reign of Edward III; and from that period we may date the cultivation of Teasels in this country. Somerset is believed to have grown them earliest; but manufacturers have given the preference to those of Gloucestershire. The plant was grown on inferior soil—strong clay—without manure, but with a great deal of labour in hoeing and weeding, and much risk that at the two years' end bad weather might destroy the return. In fact, this was known to be a speculative and precarious crop, that would either bring in a handsome profit or result in lost labour, disappointment and debt, according as the fates might determine.



"The Teazle throws up its heads in July and August; these are cut from the plant by hand with a knife particularly formed, and then fastened to poles for drying.\* The terminal heads are ready first, and are called 'kings': they are larger and coarser than the others, and fitted only for the strongest kinds of cloth. These are about half the value of the best. The collateral heads then succeed, and receive the name of 'middlings,' and are the prime teazles. Should the season prove moist, great injury ensues; and exposure to wet for any length of time ruins the head, which by its peculiar construction retains the moisture and decays. We cannot stack them like corn, as pressure destroys the spines, and a free circulation of air is required to dry them thoroughly. We seek for barns, sheds, and shelter of any kind, crowd the very bedrooms of our cottages with them in dripping seasons, and bask them in every sunny gleam that breaks out. This is attended with infinite trouble; and as few farmers—who have so many other concerns on their hands—like to encounter it, they become the speculation of the most opulent class of cottagers. When dry, they are picked and sorted into bundles for sale. Ten thousand best and small middlings make a 'pack'; nine thousand constitute the pack of kings. As to price, we have known them in the course of a few months vary from 4*l.* to 22*l.* the pack! but from 5*l.* to 7*l.* is perhaps the average price of this article."

Collinson (1791) describes the raising of Teazels "in considerable quantities" at Wrington and in the adjoining parishes, about that period. I learn through Mrs. Woodford that they were formerly cultivated near Wickwar, and that stray plants have been found about the Lower Woods from time to time.

Teazels were grown at Chew Magna in 1832; and a few also about Compton Martin.†

"On approaching my native city by the Gloucester Road there were fields literally purple with the bloom of the cultivated Teasel (*Dipsacus Fullonum*)."—*Leo H. Grindon*, July 3, 1842.

*The Victoria History of Gloucestershire* states (vol. ii, p. 195) that a crop of Teazels was raised at Cromhall in 1906.

Many acres of land between Stoke Gifford and Patchway were used for Teazels up to about 1870. Of late, the cultivation has been steadily diminishing until, at the present time, but a few isolated patches are produced. In 1908 two Patchway farmers had sown, one about three-quarters of an acre, and the other—nearer Charlton—about two acres; and the latter had some teazels in stock. In these instances sentiment seemed to be as potent an inducement as prospective profit, for their ancestors had been "great teasel growers," and the farms "would not have seemed furnished without a patch of teasels."‡

#### 498. *D. pilosus* L. *Shepherd's Rod. Small Teasel.*

Native; in moist shady places; frequent.

August.

"Near Bristol grows *Dipsacus capit. minore* in plenty."—*Dillenius' Diary* (1726).

**G.** Near Combe Dingle, by the Trym, 1879; *W. E. Green*. Still there, by Clack Mill, in 1910. Henbury Combe, 1841; *Herb. Powell*. Blaize Castle Woods, 1909; *Miss Thompson*. Bank of the Frome near Stapleton Bridge; *Bot. Guide* (1805). Noted near Stapleton by Dr. Dyer at the beginning of the last century. He was a contributor to *B. G.* Noted too by S. Rootsey in 1828, and by Dr. Stephens in 1835. Swete saw it (1854), and it was still there in two or three places in 1880 and 1898. Also on the Frome bank at Frenchay, and a mile or more higher up the river towards Winterbourne; *H. J. Wadlow*. In Oldbury Court Wood, 1907; *Miss Roper*. Sparingly by the old mill at Iron Acton, 1908. Bank of stream near Damery Bridge. Valley above Sodam Mill near Cromhall. Tortworth. Bishop's Hill Wood, Wickwar; *F. Samson*. Granham Rocks, 1905; *Miss Roper*.

**S.** Leigh Wood, 1841; *T. B. Flower*. One large patch and two small ones by the railway under Leigh Woods in 1880, 1908 and 1911. In plenty by the Avon between Fox's Wood and St. Anne's, 1892 and 1903. Long Ashton; *Miss M. Atwood* in *Swete, Fl.* Stanton Drew, 1881; *Rev. W. H. Painter*. A few plants by the roadside between Stanton Drew and Norton Malreward, 1887.

\* This work must need some practice and dexterity. In July, 1906 a Wiltshire farmer was advertising for "Teazle Cutters" in the Bristol newspapers.

† Extract from Chew Magna Vestry Books in F. A. Wood's "Collections for a Parochial History of Chew Magna," p. 271.

In several spots on the banks of the Chew, *e.g.* at Stanton Drew, Pensford and Publow; *D. Fry*. Court Lane, Clevedon; Lord's Wood, Houndstreet; Pennyquick Bottom and Newton St. Loe; *D. Fry*. Still at Newton St. Loe in 1911. Pondside to the east of Ston Easton Park; *R. V. Sherring*. East Harptree Combe; *Rutter's Hist.* (1829); and *Herb. Lawrence*, 1851. Still there in 1901. Compton Martin; *Dr. Gough*. Ham Woods near Croscombe. Highbridge, 1888. Brass Knocker Wood, Bath, 1859; *Herb. Flower*. Several other stations near Bath are quoted in *Fl. Bathon.*, and some on the south and south-east in *Fl. Som.*

### KNAUTIA *Coult.*

#### 499. *K. arvensis* *Coult.* *Field Scabious.*

Native. Very common in dry places and on arable land throughout the cultivated portions of the district, but by no means confined to cornfields. On Mendip it is plentiful in the upland pastures. I once found some proliferous plants near the Black Rock Quarry. A small group with white flowers grew by the roadside between Stoke Gifford and Winterbourne in 1905. This variety is also reported from Dursley by Miss Gingell. July to September.

### SCABIOSA *Linn.*

#### 500. *S. Succisa* *L.* *Devil's-bit Scabious.*

Native. Very common and generally distributed in damp heathy ground, open places in woods and rough, poor pasture land. July to September.

Plants with flesh-coloured flowers, almost white, have been noted by the Leechpool, and on Engine Common, G.; and between Old Down and Slade Bottom, S.

#### 501. *S. Columbaria* *L.* *Small Scabious.*

Native; about rocks and hill pasture, both on limestone and oolite; frequent. July and August.

**G.** St. Vincent's Rocks. Clifton Down. Bank of Avon under the Downs. Above Upton Cheyney in great plenty; *D. Fry*. Hills above Dursley and Wotton-under-Edge. Tytherington Hill.

**S.** Rocks under Leigh Woods. Near Queen Charlton. Hills above Yatton and Congresbury. In several places about Clevedon. Worlebury Hill, Weston-super-Mare. Uphill. With white flowers in Uphill Churchyard, 1846; *Herb. Clark*. Brean Down. On Mendip above Draycott, Cheddar, Axbridge and Sidcot. Plentiful along the old lanes that radiate from Shipham, at about 600 ft. Sparingly but permanently with white flowers on Cheddar Cliffs. Wells. Hills and Downs about Bath.

An occasional plant can be found in flower until November.

#### [*S. atropurpurea* *L.*

Alien. "Apparently wild, in great abundance, on a limestone cliff upon Dial Hill, Clevedon; associated with *Centranthus*, *Clematis* etc." *J. Cosmo Melvill* in *Journ. Bot.* xi. (1873), p. 309. Mr. D. Fry, who lived at Clevedon for some years at a later period, saw nothing of this plant upon the Dial Hill. It must have soon died out.]



## COMPOSITÆ.

EUPATORIUM *Linn.*502. *E. cannabinum* *L. Hemp-Agrimony.*

Native; on the banks of streams and in other wet places. Common and generally distributed. August and September.

PETASITES *Mill.*503. *P. officinalis* *Moench. Butterbur.*

Native; by the sides of streams and in swampy ground, frequent. April.

**G.** Low field at Bitton. Bank of the Avon between Conham and Hanham. Abundant on both sides of the Boyd at Doynton and near Wyck. Yate. By the Little Avon near Charfield, Damery and Stone. Lower Woods, Wickwar; *Miss Roper.*

**S.** In abundance on the river-side at St. Anne's Wood and higher up the Avon for some distance. By a stream under Bishport Wood, plentifully. Along the Land-Yeo stream below Flax Bourton. Lower end of Water Lane near Portbury; and on roadside banks adjoining Portbury Station and towards Portishead. Backwell Common. Banks of the Chew at Stanton Drew and Compton Dando. Abundant on the Manor Farm at Corston. Claverham. Wrington. About the old canal by Paulton. Wet thicket near Radford. Along a stream between Mells village and Great Elm. Croscombe near Wells; *Miss Livett.* Canal bank at Claverton; *Fl. Bathon.* Hallatrow and Cameley Bottom; *R. V. Sherring.*

504. *P. fragrans* *Presl. Nardosmia* *Rehb. Winter Heliotrope. Sweet-scented Coltsfoot.*

Alien. An introduced species that has rapidly increased during the last half-century, and is now completely naturalized in many places.

November to February.

**G.** Abundant on a piece of waste land by the Hotwell Road at the foot of Windsor Terrace, Clifton. Several large patches on the railway embankment under the Downs. By Avonmouth Station. Abundant at Fishponds. Road-sides near the "Old Crow," Cribb's Causeway, Hollywood and Brentry. In a lane close to the hamlet of Lawrence Weston. Hedges near Bitton Station. Side of the Pucklechurch Road close to Mangotsfield. Between Ivory Hill and Coalpit Heath. A 40-ft. patch by the roadside at the top of Thornbury Hill.

**S.** In Talbot Lane (now called Talbot Road), at the Brislington end, 1881. Still there in 1908, a large colony; but the spot is being approached by the builder. In several patches by and in a lane leading from Long Ashton towards Providence. Flax Bourton, in a lane leading from the high road to the Combe, and in a shrubbery adjoining. In a small coppice opposite the Failand Inn. Charlton Woods, above Portbury. On a heap of rubble in the Rectory Wood,

Wraxall; and in two spots by the roadside not far east of the Battleaxes Inn. Lane in the valley north of Nailsea. On the lower skirt of the Fir Wood by Hill Road, Clevedon. Roadside, Langford. Under the camp at Worlebury, Weston-super-Mare. In several places on the outskirts of Wells. On a hedge-bank for 40 or 50 yards at Compton Bishop; *Misses Cundall*.

This plant is not mentioned in the *Fl. Bathon.* (1834), nor by Swete in the *Fl. Brist.* (1854); from which we may infer that it had not secured a footing when those works were undertaken. The earliest local record I can find is in *Proc. Bristol Naturalists Soc.* 1872, p. 46, *Bot. Section*; where it is stated "that a habitat for *Petasites fragrans* had been found in this district, apparently wild and in considerable quantity"; showing evidently that the plant had not been previously met with. The locality was not given. But the tenacity with which its creeping roots hold any spot to which it may be introduced leaves no doubt that in the future it will become even more widespread than it is at present.

According to Nyman the region of nativity for *P. fragrans* is restricted to Southern Italy, Sicily and Sardinia. But it had made long strides to the westward in early times, for I have seen a specimen from Catalonia dated 1716.

### TUSSILAGO Linn.

#### 505. *T. Farfara* L. *Coltsfoot*.

Native. Common everywhere on poor soil. It is the first plant to vegetate on limestone rubble and is therefore always to be seen in abundance about the Avonside quarries near Clifton. On colliery spoil-heaps too, and railway ballast, where only the hardiest of plants could wrest a living from the sparse and arid soil, it seems to find a congenial home. It grows on Severn Beach, overflowed in times of storm, and appears to be quite indifferent to its lithological surroundings.

March and April.

### ASTER Linn.

#### 506. *A. Tripolium* L. *Starwort*.

Native; on mud banks by the tidal waters of both counties, plentiful. The handsome blue or lilac rayed flowers are not often met with in any quantity. Our plants, at least in the Avon estuary, are mostly of the discoid variety (*var. discoideus* Reichb.).

August and September.

Earliest local record:—"Aster maritimus cæruleus *Tripolium dictus* . . . . *Sea-Starwort, the greater and lesser*. In salsis maritimis ubique. *Tripolium flore nudo circa Bristolium copiosum observavi*." Ray, *Syn.* (1696). |

[Some of the North American *Asters*—hardy plants, much cultivated in England—are occasionally noticed in a semi-wild state. One of them (? *A. Novi-Belgii*) has been established many years on old quarry ground upon Hawkesbury Hill, G.]

### ERIGERON Linn.

#### 507. *E. canadense* L. *Canadian Fleabane*.

Alien; on waste ground, very rare. An American weed, apparently much more frequent in the southern and eastern counties than it is at Bristol.

August and September.



**G.** St. Vincent's Rocks; *Withering* (1796). Noted there also by S. Rootsey in 1828. Mentioned in an anonymous list of Bristol plants written about 1830. Crew's Hole; *Dr. H. O. Stephens*. The New Cut; *J. Ellis* in *Swete, Fl.* Wapping Wharf, Bristol Harbour, 1911! *Miss Roper*. Dean's Marsh, 1911! *I. W. Evans*.

**S.** Waste ground (site of abandoned iron-works) in Ashton Vale. Discovered by Mr. C. Wall. About 100 plants there in 1907, and as many the year following. The number increased 1909-1911. Abundant on waste ground south of the new bridge, Ashton Avenue, 1911! *Miss Roper*. Several plants by a roadside in Leigh Woods, about 1884; *D. Williams*.

### 508. **E. acre** *L. Blue Fleabane.*

Native; on walls, banks and dry sandy ground; rather common.

July and August.

**G.** St. Vincent's Rocks and the bank of Avon below Clifton: noted there from early times. Walls in Elm Lane, Redland; Stoke Bishop; and at the north end of Henleaze Lane by the lime quarries. Westbury and Henbury. Many plants on made ground in St. Philip's Marsh, 1906 to 1909. Wall on Kingswood Hill. Rodway Hill, Mangotsfield, and by the railway. Old colliery waste heaps north of Yate. Rockhampton; and on a wall by the roadside near Buckover, abundantly. Thornbury. Railway cutting through rock between Iron Acton and Thornbury. Wyck. Stinchcombe Hill, Dursley; *Miss Gingell*. Wotton-under-Edge.

**S.** Leigh Down and the bank of Avon under Leigh Wood. Wall in Talbot Lane, Brislington. Scattered over the slopes of an old spoil heap at Ashton Gate, and on the site of old iron-works in Ashton Vale. On a bit of furzy common by the G.W.R. near the bottom of Bird-in-Hand Lane, Long Ashton. Failand; *C. Bucknall*. Some of Mr. Bucknall's specimens with reddish-brown pappus are the sub-variety *serotinus* Weihe. Lodge Park, Keynsham; *Herb. Clark*. Nailsea; and at Saltford, sparingly; *D. Fry*. A few plants on rough pasture at Tickenham Hill. Yatton and Congresbury. Clevedon. On the coast between Clevedon and Portishead. On the rocky slopes of Worlebury Hill, Weston-super-Mare. Brean Down. Berrow sand-banks. Burnham. Buckland Dinham. Wells; *Miss Livett*. Shipham on Mendip. Frequent about Bath; *Fl. Bathon*.

This is really too common to deserve an enumeration of localities.

Gerard, pp. 471-2, says: "*Psyllium sive pulicaris herba* . . . Fleawoort, not because it killeth fleas, but because the seeds are like fleas . . . is called of some Fleabane but improperly . . . Some hold that the herbe strowed in a chamber where many fleas be will drive them away; for which cause it tooke the name Fleawoort." At page 391 *Pulicaria dysenterica* is described as "Fleabane-Mullet." The specimens figured are not wild plants, but from Gerard's garden.

HYBR. **E. acre** × **canadense** = **E. Hülsenii** Kerner.

**S.** Observed by Miss Roper in September, 1911 on the site of abandoned

iron-works at Ashton Gate, where the two species grow together in some quantity. The hybrid is probably extremely rare, as I find only one mention of its previous occurrence in this country—a single specimen near Tilford, Surrey, by the Rev. E. S. Marshall in 1884 (*Journ. Bot.* 1907, p. 164). The Ashton Gate plant (over a dozen were counted) is of graceful habit, from 4 to 10 inches in height, with pretty lilac or pale bluish-purple tinted flowers quite different from the decided dull red-purple of *E. acre*. The achenes are intermediate in size but contain no seed. Mr. Bucknall has observed that *E. canadense*, at Bristol, produces many infertile fruits. Mr. Marshall tells me that his Surrey plant was large and spreading with considerably larger heads, and thus those detected by Miss Roper form a better intermediate, but the leaf- and phyllary-characters are practically identical in all. Some amount of variability is to be expected with any hybrid.

The plant under notice is not recorded in the French Floras, but is given by Focke from several places in East Germany.

### BELLIS *Linn.*

#### 509. *B. perennis* L. *Daisy.*

Native; in pastures and turfy places nearly everywhere. February to October.

In the Stephens Herbarium there is a specimen of what has been called the "Hen and Chickens" daisy, bearing seven or eight small capitula on stalks about  $\frac{3}{4}$  in. long that spring from the parent receptacle. It was found near Clevedon by the Rev. G. W. Braikenridge. I have a similar stem from Redland Green, gathered many years ago. These are technically described as "lateral floral proliferations of the inflorescence."

Daisies with the ligulate flowers entirely wanting occur on the Severn bank near Hallen. The form is generally accounted rare.

### SOLIDAGO *Linn.*

#### 510. *S. Virgaurea* L. *Golden Rod.*

Native; on rocky and bushy banks in many places, rather common.

July to October.

**G.** St. Vincent's Rocks and the Downs slopes above the river. Penpole and Kingsweston, sparingly. Blaize Castle. Bury Camp. Yate Lower Common, among furze. Wyck Rocks. Cromhall Common and Sodam Mill. Tortworth.

**S.** Leigh Woods, chiefly in open spots above the Avon. Providence Place and Ashton Tump. Coast S.W. of Portishead; *Miss Livett*. Walton-in-Gordano; *D. Fry*. Clevedon. Yatton and Congresbury. Worlebury Hill, Weston-super-Mare. Brean Down. Rocks, etc. above Cheddar. Downhead Common; *Fl. Som.*

### LINOSYRIS *Cand.*

#### 511. *L. vulgaris* Cass.

Native; on limestone rock near the sea, very rare. August to October.



**S.** Formerly on rocky ground above Birnbeck Island, Weston-super-Mare; apparently in some quantity at one time, as there are numerous records for that locality. In the Jenyns Herbarium at Bath, on specimens gathered Sept. 1851, it is noted—"The spot was then being built over." But the Rev. G. E. Smith had an example labelled "Weston-super-Mare, 30 Sept. 1853; *E. Lawrence*." And I am informed by Mr. David Fry that Miss P. A. Fry possesses a specimen collected in 1856 near the spot where a flag-staff formerly stood on the hill just above Anchor Head. This appears to be the last record from the Weston-super-Mare habitat which has long been destroyed by building.

There can be no doubt that this species grew also on Worle Hill, at the other end of the ridge; whence it seems to have disappeared at about the same period. In the Flower Herbarium there are specimens from "Rocks on Worle Hill above Worle village, 2 Sept. 1830; *W. Christy Jun.*"; and Mr. Flower told me he had himself seen the plant there some years afterwards. Other records for Worle are by Syme in *Engl. Bot.*; by Miss Powell, Sept. 1846; and by the Rev. L. Jenyns, Sept. 1857. I can find no evidence of later date than that last mentioned. Mr. David Fry and I have thoroughly, but fruitlessly, worked the slopes above Milton, Worle and Kewstoke in quest of the plant. At the present day there hardly remains upon the hill a bit of unquarried rock, on which alone the *Linosyris* might be expected to survive.

A new locality, on another part of the North Somerset coast, was discovered by Mr. G. C. Druce in October, 1904. See *Journ. Bot.* for Dec. 1904. The plant grows there over about 30 feet of rock that appears never to have been disturbed. It is to be hoped that whoever may find the place will respect this great rarity and carefully avoid interference with its roots. There are but two other stations for it in Great Britain.

## INULA Linn.

### 512. I. *Helenium* L. *Elecampane*.

Native; about the borders of fields and woods, by stream-sides and amongst bushes in many places. Quite frequent, persistent, and certainly wild in some of its stations. July and August.

**G.** Along a few yards of ditchbank on both sides of the way in Ableton Lane, between Hallen and New Passage—a locality often spoken of as "Hallen Marsh"! *D. Fry*. Field on the Holm Farm, Northwick, about five miles from the Ableton Lane habitat; *F. Samson*. On the inner edge of a ditch separating pasture from arable by the field-path leading from Ingst to Aust; flowering splendidly for about 50 yards and with outliers for some distance in addition! *F. Samson*. A few plants on the left hand of the road from Ingst to Northwick. A large patch in the corner of a wood in Bitton parish, not far from Hanham Ferry. In a pasture near Wyck Cliffs; *Swayne* in *Withering* (1796). Wyck Cliffs and Bitton meadows; *Flower* in *Fl. Bathon. Suppl.* A quantity on the edge of a field between Northwoods and Patchway, 1907; *Miss Roper*. For 20 yards or so along the bushy edges of a small stream running through pastures between Little Stoke and Woodlands! The plant extends into the fields on

both sides of the stream, which is little more than a ditch. Rather plentiful in a field of mowing-grass next a boundary stream half a mile south of the old Alveston Church! Both these localities are far from habitations. They were pointed out to me by Mr. F. Samson. Roadside, Milbury Heath; one flowering plant and a few seedlings, 1909; *Miss Roper*. Grassy waste by the roadside going from Rockhampton to Hill, 1907! about six roots, but no flowers in 1910. Parkfield, on the edge of a field by a road close to the railway; *Miss Roper*. Meadow by the Lower Woods near Wickwar, 1908; *F. Samson*.

**S.** Brislington, 1853; *Herb. Stephens*. Brook-side towards Dundry; *id.* Still there in 1903: at least the "Crox Bottom, Bishopsworth" reported by Mr. F. Samson must almost certainly refer to the same spot. About a farmstead 100 yards north of Bedminster Down. Reported from Bedminster by Rootsey in 1828. Along a wood-border between Providence and Flax Bourton; *C. Wall*. Skirt of an orchard close to the village of Barrow Gurney. Two clumps in the hedge of a lane between Failand Hill and Pill; *Misses Cundall*. Field close to the road between East Dundry and Norton Malreward, 1889; *J. F. Hopkins*. Still there in 1900. Three or four plants in the *Carex strigosa* wood at Norton Malreward, 1887, looking quite native, being associated only with purely indigenous species, and far from any house; *D. Fry*. Bushy hillside below Kelston, 1890. Burnet near Keynsham, 1876; *Herb. Flower*. Plentiful on a field border between Chewton Keynsham and Compton Dando. A patch among bracken on ground rising from the Chew opposite Compton Dando. In great plenty at Tucking Mill near Compton Dando; *D. Fry*. On 150 yards of hedgebank and pasture on high ground between the top of Tickenham Hill and Charlton Woods! *C. Bucknall*. In great quantity in a damp meadow near Wraxall, 1882-3; *W. B. Waterfall*. "Between the Church and Independent Chapel, Portishead;" *Duck, Hist.* Mr. Flower records it from Portishead in *Phytol.* I, p. 68. And Mr. D. Fry says that a relative of his has a specimen gathered, he thinks, by Duck. One large plant, with *Scirpus sylvaticus*, near Hallatrow, 1883; *D. Fry*. Priston. Meadow between Brickfield and Breach Hill; *Dr. Gough*. Hay Hill, one mile south of Wells, in 1850; at Yarley in 1860; also in other spots near Wells; *Miss Livett*. Meadow near the Warminster Road, a mile and a half south-east of Bath; *A. E. Burr*. Field below Hampton Down; *Miss Peck*. Meadow by the canal near Bath; *A. E. Burr*. Canal-side near Claverton; *T. F. Inman* in *Fl. Som.* The last four records may well refer to the same place. Several other localities near Bath are described in *Fl. Bathon.* and *Fl. Som.*

Among the very largest of our wild flowers, attaining a height of 5-6 feet, and with root-leaves of two feet. If the ray-florets opened out horizontally, instead of standing up around the disk, the heads would appear still handsomer and more like those of a "wild sunflower"—the name sometimes given to it. In old times the root of Elecampane was candied and held in esteem as a pectoral medicine. For that purpose it must have been often cultivated; but now one seldom sees it in a garden.

Mr. Samson's peculiar aptitude for hunting down Elecampane is one of the remarkable traits that distinguish my valued helpers in field-botany.



**513. I. Conyza DC.** *Ploughman's Spikenard.*

Native ; on grassy slopes, roadsides, banks and old walls ; both on limestone and sandstone ; rather common. July and August.

**G.** St. Vincent's Rocks, the Gully, and under the Downs below Clifton. Brandon Hill ; *Winch* in *New Bot. G.* (1835). About the sandstone quarries above Bristol, between Hanham and Crew's Hole. Henbury. Bitton ; *D. Fry*. Between Charfield old Church and Cromhall. Tytherington Hill. Engine Common, north of Yate. Falfield. Tortworth. Wotton-under-Edge. Stinchcombe Hill. Dursley.

**S.** Leigh Woods, on open ground and slopes above the Avon. Wall-top by the roadside close to the Suspension Bridge. Lanes between Abbotsleigh and Failand, and on Failand Hill. Brislington. By the roadside between Pensford and Stanton Drew. Saltford ; *D. Fry*. Flax Bourton. Abundant on exposed limestone in Chelvey Batch. West Hill, Wraxall. Here and there on the high ground between Portishead and Clevedon ; and on the Court and Castle Hills. Near Yatton ; *Miss Winter*. Congresbury. Churchill Batch. Cheddar. Lower Nempnett ; *C. E. Salmon*. Worle Hill, in several places. Brean Down. Bleadon. About Wells ; *Miss Livett*. Binegar ; Mells ; Steep Holm ; *Fl. Som.* In plenty on the hills ; *Fl. Bathon*.

[**I. crithmoides** L. *Golden Samphire*.

"Near Bristol ;" *G. Cooper* in *Herb. Watson*. This is referable doubtless, to the Steep Holm, whence the plant has been recorded by many observers. It still grows "upon the Rocks on the South Side," as was first noted by Sir Jos. Banks, 3 July, 1773, in *Herb. Br. Mus.*]

**PULICARIA Gaertn.****514. P. dysenterica Gaertn.** *Common Fleabane.*

Native ; on moist roadsides, ditchbanks, and badly drained grass lands. Very common. August and September.

**FILAGO Linn.****515. F. germanica L.** *Common Cudweed.*

Native ; on roadside wastes and banks, and as a weed in dry fields ; frequent. July to September.

**G.** Durdham Down ; and fields leading to Penpole ; *Swete, Fl.* Several plants on a rocky slope of Clifton Down near the Zoological Gardens, 1909 ; *C. Wall*. Fields between Horfield and Brentry ; and at Filton. Cornfields between Sea Mills and Kingsweston ; on the Manor Farm. Stapleton. By the field path from Charlton to Patchway. Winterbourne. Wickwar.

**S.** Chelvey. Wraxall. Clevedon. Walton- and Weston-in-Gordano. Arable land between Yatton and Congresbury. Compton Bishop ; *E. S. Marshall*. Cheddar ; *J. G. Baker*. Worle. Brean Down. Asham Woods ; *Fl. Som.* Dry pastures on the hills ; *Fl. Bathon*.

This is the *Herba impia* of old authors, so called because the stem bearing at first a solitary terminal cluster of flowers, produces from beneath it branches

carrying similar clusters that overtop the old one, as if an offspring were undutifully exalting itself above the parent. The name *Cudweed* arose from a supposed power in this herb to promote rumination in cattle.

**516. *F. apiculata* G. E. Sm. *F. lutescens* Jord.**

Native; only once recorded.

July and August.

**G.** "On Pennant at Stapleton;" *Herb. Stephens.*

This, like the next species, may only appear at intervals and be absent for long periods. If so, and it is quite probably the case, the fact that no one seems to have recognized the plant since Dr. Stephens gathered it is largely explained.

**517. *F. minima* Fries. *Slender or Least Cudweed.***

Native; on barren sandy ground where rock is close to the surface; very rare.

June to September.

**G.** Near Hanham Mill; *Herb. Stephens.* Hanham, 1844; *Thwaites* in *Herb. Watson.* Many years passed before another botanist observed the plant at Hanham. It was in September, 1886 that Mr. D. Fry detected eight specimens on high ground above the Avon near the road that runs from Hanham Court to the village; a different spot, apparently, from that where Stephens got it, and some distance higher up the river than Thwaites' second locality (Conham) recorded in *Swete, Fl.* p. 48. Although so seldom noticed, it would seem probable that the species is fairly well distributed over that part of the Avon Valley.

**S.** A patch of about 20 sq. yds. on pennant between Brislington and Keynsham, August, 1890. I have visited the spot repeatedly since that date without finding a single plant. Brean Down; *St. Brody* in *Fl. Weston* (1856). This station was not verified until 1888, when many plants were seen on a part of the S.W. slope, far away from any cultivation. Mr. D. Fry, in *Fl. Som.*, records it also from tillage on Brean Down. Steep Holm, 1872; *Jno. Storrie.*

These annual Cudweeds have a strict adaptation to dry, bare, open ground where the thin infertile soil will not produce any close luxuriant growth of taller plants that would overtop and smother them. For the *Filagos* seem able to hold their own in competition only with the lowliest herbage—species alike in delicacy to themselves.

**GNAPHALIUM Linn.**

**518. *G. uliginosum* L. *Marsh Cudweed.***

Native; on wet wastes by roadsides and as a weed in badly drained arable land; rather common.

July to September.

**G.** Ditch-sides and fields between Shirehampton and Avonmouth. On the Hanham side of Trooper's Hill. Horfield. Patchway. Earthcott. Tockington. Coalpit Heath. Elberton. Aust. Wickwar. Dursley. Wyck; *Fl. Bathon.*

**S.** The Old Park, Abbotsleigh. Failand. Portbury. Stockwood. Whitchurch. Pensford. Stanton Drew. Nailsea. Yatton. On the hill above



Weston-in-Gordano. Weston-super-Mare. Uphill; *St. Brody*. Downhead; *Fl. Som.* Combe Hay; *Fl. Bathon*.

**519. *G. sylvaticum* L.** *Upright Cudweed.*

Native; in woods, upland pastures and heathy ground; rare and perplexingly capricious in its appearances. Although it does not entirely desert a locality there are some seasons in which a single specimen is all that is visible, while in a succeeding year there may be a plentiful crop. July to September.

**S.** In a wood between Portishead and Weston-in-Gordano, 1891! *L. W. Rogers*. Four plants there in 1892. On a steeply sloping hillside above the sea beyond Ladye Bay, in the parish of Walton-in-Gordano; a few small plants in rather short turf among gorse and brambles! *Miss Livett*; *Miss W. Mather*; and *S. T. Dunn*. One plant in the Lord's Wood, Houndstreet, about 1880, and one again at the same spot in 1890; *Rev. W. S. Browne*. I saw one there in 1902. In a bog on Downhead Common; *Dr. H. F. Parsons*. A fair quantity there in 1892, within a short half mile of Cranmore Tower. Field near Asham Woods; *Rev. S. Laing*.

**ANTENNARIA** *Gaertn.*

**520. *A. dioica* Gaertn.** *Cat's-foot. Mountain-Everlasting.*

Native; on exposed hillsides, in extremely small quantity. Very rare.

June and July.

**G.** On the north end of Stinchcombe Hill, many years ago; *Miss Gingell*.

**S.** Rocks on the south side of Brean Down; *St. Brody* in *Fl. Weston* (1856). We had no confirmation of this early record for many years. But in 1895 I learnt that Mrs. Gregory had twice met with it on the Down; and Mr. F. Beames assures me that he has seen it there also. The plant being so frequent in northern districts, neither of these botanists realized its importance locally, and no specimen was taken. There can be no doubt, however, that it still exists on Brean Down, though the quantity must be very scanty. I have searched for it there without success. Worle Hill, in one spot, discovered by Mrs. Gregory in 1898; thus conclusively establishing the claim of this species to a place in the flora of Somerset. Shortly afterwards the finder conducted me to the place, and I saw it again in 1902 and 1905, when the patch was about 18 inches in diameter, healthy and flowering.

The Cat's-foot occurs in a curiously similar and sparing fashion in other parts of the country. I believe there is but a single record for the county of Cheshire; while only one small patch is known to exist in Oxfordshire; Herefordshire; East Gloucestershire; E. Cornwall; and the whole of Hampshire respectively.

[***A. margaritacea* R. Br.** Alien; from North America. An old favourite in cottage gardens that becomes established occasionally on suitable ground.

**S.** A strong plant on quarry rubble near Flax Bourton, 1911! By the G.W.R. near Fox's Wood quarries, Brislington, 1892 and later. Dry hillside, Clevedon, Sept. 1850; *Herb. Cundall*. The plant was rediscovered at Clevedon in 1883 by Mr. D. Fry, who wrote that it grew on the top of some rocks at the edge of a wood, far from habitations and where the other vegetation was all purely indigenous.]

## ACHILLEA Linn.

521. *A. Ptarmica* L. Sneezewort.

Native; in wet peaty meadows and poor clay ground; rather rare and sparingly distributed.

July and August.

**G.** Filton Meads; *Swete, Fl.* Between Horfield and Filton; *Herb. Stephens* and *G. H. K. Thwaites* in *Swete*. Between Horfield and Charlton, 1849; *Herb. Cundall*. Fields between Berwick Lodge and Henbury, 1834; *Herb. Powell*. Plentiful in rough pasture on Spaniorum Hill near Hallen, 1885. Fields between Shirehampton and the Severn, rather plentiful in 1887; *J. F. Hopkins*. In one grass-field at Frenchay, where it is usually mown before flowering; *C. F. Denning*. Siston Common, 1895 and 1901, quite sparingly! *C. Bucknall*. Still there in 1910. Meadow near Stoke Gifford; a damp hedge-bottom by the Frampton Water Works; and a large plant on a field-border at Coalpit Heath; *Miss Roper*. Many plants in an undrained pasture and by a colliery siding between Coalpit Heath and Winterbourne Stations, on the north side of the line. Stover; Engine Common; and Goosegreen Farm, Yate. Yate Common. Rough clayey field by the Midland Railway, a mile east of Rangeworthy. Cromhall.

**S.** Bedminster; *T. B. Flower*. In damp ground by the railway near Clutton and in fields adjoining, in considerable abundance; *D. Fry*. Hinton Abbey, Temple Cloud, and Cloud Wood; *T. B. Flower* in *Fl. Bathon. Suppl.* Several plants on Clapton Moor, 1902. Clevedon; *Mrs. Lainson*. Edford Common and Beckington; *Fl. Som.* Meadow between Bath and Lacock Abbey; *A. E. Burr*. A small quantity in the N.E. corner of Furse Wood near Masbury Camp, 1908; *R. V. Sherring*.

522. *A. Millefolium* L. Yarrow. Millefoil.

Native; in pastures and open turfy ground nearly everywhere. Very abundant.

June to September.

[**A. nobilis** L. An alien from the mountainous regions of central Europe.

**G.** Some dozens of plants on a heap of old colliery waste between Kingswood and Warmley from 1879 to 1895; now destroyed. A few plants on made ground in St. Philip's Marsh, Bristol, yearly from 1902 to the present time.]

## ANTHEMIS Linn.

[**A. tinctoria** L. A casual that occurs from time to time in a few scattered localities but never becomes established.

**G.** Sparingly for a few years on old colliery waste near Kingswood, with the last species and other aliens. In St. Philip's Marsh, Bristol, rarely from 1888 to 1902.

**S.** Two plants in Portishead Station-yard, 1907. Casual near Twerton, 1897; *S. T. Dunn*.]

523. *A. arvensis* L. Corn Chamomile.

Colonist; on arable and waste land; very rare.

June to August.

**G.** Many plants near the Corporation Electrical Works in St. Philip's Marsh, Bristol, 1901 to 1904. In fair quantity for two or three years on the old colliery waste near Kingswood already mentioned as a former locality for aliens. By a slip *A. arvensis* has been recorded from Kingswood in the *Flora of Somerset*. Sparingly in a field of Sainfoin, etc., near Winterbourne Church, 1909.



**S.** Several plants in Portishead Station-yard, 1902; one there in 1906; and two in 1910.

Although in Swete's time he could speak of the Corn Chamomile as "not uncommon in cornfields and dry gravelly places" it is now of general scarcity in our western counties; occurring usually as a weed among clover and sown grasses. The large white flowers are faintly sweet-scented, and the whole odour of the plant is aromatic rather than acrid. It flowers at least a month earlier than *A. Cotula*, from which species its pleasant aroma and procumbent stems afford a ready distinction.

**524. *A. Cotula* L. *Stinking Chamomile*.**

Colonist; in cornfields, cultivated ground and waste places; frequent.

July to September.

**G.** Cornfields between Stoke Gifford and Patchway, and between the latter place and Charlton. On the Warmley end of Siston Common; *D. Fry*. Cornfields about Coalpit Heath and Winterbourne. Wotton-under-Edge. Dursley.

**S.** Cultivated land at Bishopsworth. Brislington. In several fields about Whitechurch. Keynsham. Pensford. Barley-field between Stanton Drew and Knowl Hill. Yatton. Weston-super-Mare. Crocombe and Wells; *Miss Livett*. North Stoke. In cornfields and waste ground, frequent; *Fl. Bathon*.

Referring to his Stanton Drew record Mr. Fry wrote:—"On many of the plants here I observed that styles were present in the ray florets. This peculiarity, noticed also in a plant gathered at Chew Magna, seems a very unusual one. Bentham goes so far as to say that the ray florets of *A. Cotula* are *always* without styles; whilst other authorities state that such is *almost* always the case."

**525. *A. nobilis* L. *Common or Sweet Chamomile*.**

Native; on a coast down, and sometimes casually on waste turfy ground. Very rare.

July to September.

**G.** Occasionally on waste ground about Bristol; *Swete, Fl.* Thus in Tyndall's Park, 1881.

**S.** Brean Down, not plentiful, 1888! *H. S. Thompson*. Gathered on Brean Down also in 1896 by Mrs. Gregory. Yatton; *Miss Winter*. Wells; *Miss Livett*. Casual or outcast in the latter instances.

A general resemblance of the flower-heads in the genera *Anthemis* and *Matricaria*, and their common possession of odours, however dissimilar, have sometimes misled young botanists to report one of the allied species as a find of the true Chamomile. Even the gifted author of *Bristol Pharmacology* (quoted under *Aconitum*) was mistaken. He says "*Anthemis nobilis*. This well-known plant is found on most of the waste places near Bristol; as at Hanham, Crew's Hole, Pill, Sea Mills, etc."

[*Anacyclus radiatus* *Lois*. A handsome yellow-flowered alien from the Mediterranean region, imported with produce. It has been found with some regularity since 1899 on city rubbish at St. Philip's, and on corn-mill refuse by Portishead Dock.]

**MATRICARIA** *Linn.***526. M. Parthenium** *L. Feverfew.*

Denizen ; on old walls, rubble heaps and waste ground ; frequent. Often near villages and no doubt usually a garden escape ; only rarely is it found at a distance from habitations.

June to September.

**G.** Walls on Kingsdown and about Cotham, Bristol. Frequent about Stapleton. On and under walls and about the quarries at Cleeve near Frenchay, St. George. Conham. Hanham. Abundant in Stanbridge quarry near Mangotsfield. Wyck Rocks, 1897 ; *Miss Roper*.

**S.** Railway bank under Leigh Woods. Bedminster. By Ashton Avenue, 1911. Long Ashton. Bourton Batch. About the abandoned collieries at Nailsea. Yatton. Congresbury. Clutton. Winscombe ; *D. Fry*. Hedgebank of an ancient track on Mendip east of Cheddar. Worle and Weston-super-Mare. Crocombe and Dulcote near Wells ; *Miss Livett*. Kelston and Bathford ; *Fl. Bathon*. Bank of the Midford Brook near the Mill.

**527. M. inodora** *L. Scentless Mayweed.*

Native ; in cultivated ground and waste places, very common. A maritime form or variety = *VAR. β. salina* Bab., with short, fleshy leaf-segments, grows on the shore of the Bristol Channel.

July to September.

**528. M. Chamomilla** *L. Wild Chamomile.*

Native ; in cultivated fields and by roadsides ; rather common.

June to August.

**529. M. discoidea** *DC. M. suaveolens* Buch. *Rayless Mayweed.*

Alien. A low bushy plant with stout, densely leafy stems, crowded rayless heads, and 4-toothed florets ; quite different in habit from the other *Matricarias*. Originally from North America, but now rather widely scattered in England and on the continent of Europe. It is fast becoming a common weed by waysides, railways and mills.

July and August.

**G.** Sparingly on waste ground in St. Philip's Marsh, Bristol, 1902 to the present time. One large plant near the Avon below Shirehampton, 1909. Two on the roadside near Westerleigh, 1910 ; *C. Bucknall*. A dozen by Sodam Mill, Cromhall, 1910.

**S.** By fowl runs at Walton- and Weston-in-Gordano, 1907 ; *Miss Livett*. In enormous quantity in a neglected cultivation under the woods between the villages just named ; and along the grassy track, known as Cadbury Road, that leads from Weston-in-Gordano over the moor to Clapton, 1909. In 1911 the plant had spread along the light railway towards Clevedon. Portishead Station-yard, 1903 to 1910. A large patch at the entrance to the light railway, Portishead, 1909. On both sides of the upper road to Clevedon from Portishead, 1909 ; *Miss Jacques*. Waste ground by Ashton Avenue, 1911. By the Dundas Aqueduct near Bath ; *Miss Roper*.

One or two other rayless Composites, at present unnamed, have been frequent in St. Philip's Marsh and at Portishead.



**CHRYSANTHEMUM** *Linn.***530. C. Leucanthemum** *L. Ox-eye. Moon Daisy.*

Native ; in waste grassy places and barren or peaty pastures. Very common throughout the district. June to September.

Mr. D. Fry, in 1894, had a very curious form of Ox-eye from Newton St. Loe. In this the florets of the ray instead of being, as normally, ligulate, were tubular with 4- or sometimes 5-cleft limbs.

**531. C. segetum** *L. Corn Marigold.*

Colonist ; in cornfields and waste ground. Rare, and little more than a casual with us. It never occurs in any quantity either in Somerset or West Gloucester ; this scarcity contrasting strongly with the profusion often met with in the cornfields of other counties. June to October.

**G.** Ashley Hill ; *W. E. Green*. Baptist Mills, 1911. Shirehampton ; and occasionally in cornfields at Horfield ; *Swete, Fl.* p. 50. Sparingly in St. Philip's Marsh from year to year. A few plants about the quarries at Stapleton, Fishponds and Frenchay. Oatfield between Fishponds and the Frome ; 1910. Rather plentiful amongst Sainfoin at Winterbourne, 1910.

**S.** Bank of Avon, Leigh side, 1833 ; *Herb. Powell*. Flax Bourton ; *Swete, l.c.* One plant on a bank at Whitechurch, 1886 ; *D. Fry*. Cornfields at East Dundry ; and at Norton Malreward, 1887 ; *J. F. Hopkins*. Pensford Station, 1899 ; *Miss Roper*. Cornfield at Portbury, 1909 ; *Misses Cundall*. In small but increasing quantity about the sidings in Portishead Station-yard for many years past. Near Congresbury, 1888. Cultivated fields at Weston-super-Mare ; *St. Brody, Fl.* (1856). I saw some there, near the Gas Works, in 1897. On Downside Farm above Brockley Combe, 1883 ; *D. Fry*. Oatfield at Uphill, 1899. Near Twerton, 1897 ; *S. T. Dunn*. "Frequent in cornfields ;" *Fl. Bathon*. (1834). Referring to this statement of Babington's, the Rev. L. Jenyns in his "Lecture on the Bath Flora," 1866, said that he had never met with the plant at Bath.

[**C. coronarium** *L.* A ballast or grain-sifting casual from the Mediterranean, to be seen usually on the rubbish-tips in St. Philip's Marsh, Bristol ; and, more abundantly, on railway sidings near Portishead Dock. Baptist Mills, 1911 ! *I. W. Evans.*]

**ARTEMISIA** *Linn.***532. A. Absinthium** *L. Wormwood.*

Native probably in one or two of its stations on rocky banks and open hill-pastures. Usually a Denizen in waste ground near farms and villages. Rather rare. July and August.

**G.** Casual on made ground in St. Philip's, Bristol, 1909. Near Wyck ; *Fl. Bathon*. Wotton-under-Edge ; *W. E. Loxton*.

**S.** One or two plants in a roadside quarry towards the bottom of Tickenham Hill, 1905 ; *Misses Cundall*. And on the rock of Stone-edge Batch ; *Miss Livett*. Sparingly by farm buildings at the bottom of Tickenham Hill, 1880 ;

*W. E. Green.* Still there, 1908. Roadside between Tickenham and Nailsea; *Miss Roper.* Two or three plants on the hill above Tickenham, on the Clevedon side of Cadbury Camp; *D. Fry.* Near the Battery, Portishead, 1849; *Herb. Cundall.* In several spots at Portishead; *Duck.* In great profusion with *Nepeta Cataria* on the hill above Weston-in-Gordano, near Weston Lodge; *D. Fry.* And by a cart track from the village towards Clapton, 1894. Kewstoke; *Rev. W. H. Painter.* Waste ground in Kewstoke Bay; *Mrs. Gregory.* Weston-super-Mare, 1837; *Herb. Powell.* Abundant in a rocky pasture behind farm-buildings below the upper Bristol road, about a mile and a half from Weston-super-Mare, 1888. In abundance among crevices of the limestone at Ford, in the parish of Chewton Mendip; *E. S. Payne* in *Fl. Som.* Tadwick; *Fl. Bathon.*

### 533. *A. vulgaris* L. *Mugwort.*

Native; on hedge-banks, waste ground, and the borders of fields. Abundant in some places, and apparently well distributed throughout the district. More frequent with us than in South or West Somerset. July to September.

### 534. *A. maritima* L. *Sea Wormwood.*

Native; on salt marsh turf and sea banks of the estuaries, locally plentiful. August and September.

**G.** Bank of Avon near the Powder House above Shirehampton, and sparingly between the Ferry and Avonmouth. Shore of the Severn here and there from Berkeley southward.

**S.** Salt marshes near Portbury, and by St. George's Wharf near Pill. On a low cliff west of the Nore below Portishead. In many spots near the Channel between Clevedon, Kingston Seymour, and Woodspring. Formerly on Anchor Head rocks, Weston-super-Mare. Sea banks and mud-flats near the Axe, between Uphill and Brean Down. Salt marsh at the mouths of the Brue and Parret between Burnham and Highbridge. Steart Island, 1824; *Herb. Clark.* Still there in 1887.

The *VAR. gallica*, with denser panicle branches, erect instead of drooping, is quite inconstant and has but little to separate it from the type, although it was recognized as distinct by some of the earliest botanists. It was recorded from Shirehampton Marshes by Swete (*Fl. Brist.* p. 48); but I have not myself met with a well-marked example.

#### [*A. pontica* L.

Alien. "A native of dry hills from Southern Germany to the Caucasus. It has been grown in English gardens, under the name of Roman Wormwood, from early times."—*Dunn's Alien Flora.*

**G.** On a small colliery waste-heap, known as "Holly Gess," between Kingswood and Hanham, 1886. A large patch was found on waste ground near Warmley Station, in 1896, by Mr. Dunn, who distributed specimens through the Exchange Clubs. The plant did not establish itself at either of these localities and soon disappeared.]

## TANACETUM Linn.

### 535. *T. vulgare* L. *Tansy.*

Native or Denizen. Rather common by waysides near water, on waste ground, and on the principal river-banks, but decidedly local.

August and September.



**G.** Abundant in St. Philip's Marsh, at Crew's Hole, and by the Avon tow-path at least as far up as Hanham and Bitton. A few plants on shingle by the Severn below the Tunnel. By Avonmouth Docks. Tortworth. Rockstowes, E. of Dursley; *Miss Gingell*. Wotton-under-Edge; *V. R. Perkins*. On Trap rock near Stone.

**S.** Bank of Avon here and there from Batheaston and Bath down to Keynsham and Brislington; and again below Bristol under Leigh Woods. By the roadside between Keynsham and Queen Charlton. A few plants in a lane between Failand Golf Links and the Tan-pits. Sparingly in two or three spots between Failand and Portbury, about Water Lane. West Hill, by the Down Road, Portishead! *Miss Livett*. Grass plot by Portishead Station; and by the lake, 1910. Yatton. Clevedon. Brean Down; *St. Brody*. Crosecombe and Wells; *Miss Mayow*. Canal bank between Combe Hay and Dunkerton; *Fl. Som.* By the riverside in plenty; *Fl. Bathon*.

Tansy was widely used both in food and medicine until quite recent times. "At Lent and in the beginning of Spring, while the hearbe is young and tender, to make cakes thereof with egges fried, which are called Tansies, and are very profitable for those who are troubled with bad humours, etc." *Parkinson* (1640). At Bristol the peculiar, strong aroma of the plant gave flavour to a kind of rich pudding, formerly served at Corporation feasts; and so recently as 1830 it was noted in *Withering*, ed. vii., that boys were observed on the Avon near Hanham and Keynsham "gathering a boatload to convey to Bristol for the purpose of making wine."

Recipes for Tansy pudding can be found in the *Gardeners' Chronicle* for 1873, pp. 1210, 1372.

"Wild Tansy, laid to soak in buttermilk nine days, will make the complexion very fair."—*Cole's Art of Simpling*.

## DORONICUM *Linn.*

### 536. *D. Pardalianches* *L. Leopard's Bane.*

**Alien.** An old inhabitant of English gardens; naturalized in a few places. Its numerous stolons enable it to take good hold of any suitable ground on which a root may have been cast out. The genus is at home in the alpine and sub-alpine regions of central and southern Europe. April and May.

**G.** Glen Frome, Stapleton, 1881; not seen lately. In the moat-field by Bradley Court, Wotton-under-Edge; *M. & J. Tail*.

**S.** A patch at the Leigh Road end of Beggar's Bush Lane appeared in the Spring of 1905. It was first reported by Mr. C. Bucknall, and has since increased. Near Nailsea; *H. S. Thompson* in *Fl. Som.* Several plants on a damp roadside between Nailsea and Chelvey; very probably Mr. Thompson's locality; *Miss Roper*. Babington; *H. F. Parsons* in *Fl. Som.* Known many years in a lane at Flax Bourton that leads to the Combe; well established on several yards of a high bank. In a thicket of brambles and *Viburnum Lantana* by the old coal canal, a short distance north of Dunkerton. Over a considerable space in a

wood near Conkwell, 1873; *Herb. Jenyns*. Messrs. Burr and Fry have examined the Conkwell locality. The latter remarks: "Doubtless an introduction there." The spot may be in Wilts. Several other localities near Bath are mentioned in *Fl. Bathon. Suppl.*

### SENECIO *Linn.*

#### 537. *S. vulgaris* L. *Groundsel.*

Native; a common weed everywhere on cultivated and waste land.

January to December.

#### VAR. *radiatus* Koch.

**G.** Several strong plants by Avonmouth Docks, 1909; *C. Bucknall*. A few there in 1910. One near the river below Shirehampton. By a new road at Henleaze, 1907; *Miss E. Garaway*.

**S.** Roadside by Portishead Station, and about sidings in the Station-yard. First observed in 1900, when only a few individuals were seen mingled with the type. In some later years it has been abundant. Roadside, Walton-by-Clevedon; *Miss Livett*. A garden weed at Nunney; *Rev. S. Laing*.

This rayed variety is, as a rule, stouter and sturdier than the type; of dwarf habit and with rather fleshy leaves. The ray is often conspicuous; not exactly of "minute revolute marginal flowers:" *Bab. Man.*, but with the ligules equaling, in the fresh state, one-third the length of the antherode. The achenes are not more glabrous than those of the type, and in other characters it does not differ from Common Groundsel. Mr. C. E. Salmon agrees with me that the Portishead plant matches well with sand-dune specimens from Guernsey and Jersey. There arises no suspicion of hybridity with *S. squalidus*, which does not grow in Somerset. A note from the Rev. E. F. Linton mentions that *radiatus* seems to occur generally not far from the sea; or, as at Killarney, in the neighbourhood of large sheets of water. Dr. Trow finds a rayed plant near Cardiff in which the ligules are sometimes very long, and are revolute only on old capitula, at night, or in bad weather. He says he cannot distinguish the variety from the type up to the moment when the flowers appear.

An interesting investigation among forms of Groundsel—four distinct segregates with their hybrids "in every possible combination" are recognized—is reported in the *Flora of Glamorgan* by A. H. Trow, D.Sc., F.L.S. The account is reprinted in *Journ. Bot.* 1909, p. 304.

#### 538. *S. sylvaticus* L. *Mountain Groundsel.*

Native; on dry banks, heathy or peaty ground, and the borders of woods; with a marked preference for the Pennant-sandstone formation of our Coal Measures. As observed by Briggs near Plymouth, it will often come up abundantly on a common when the furze or broom has been burnt off. Locally frequent.

July and August.

**G.** On old quarry rubble and open spots in the Avon valley above Bristol, from Crew's Hole to Hanham Ferry. By the Frome near Fishponds. Frenchay. Moorend. Bury Camp. Bank in Stoke Lane between Stapleton and Stoke



Gifford. "Ruddy Hill near Mangots Field;" *Swayne* in *Withering*, 1796. Still at Rodway Hill and one or two other places near Mangotsfield. Among turnips below Ivory Hill, 1905; the seed doubtless from the hill-top, where the plant is plentiful about burnt clearings. Yate Common, and on some of the railway banks near Yate and Westerleigh.

**S.** Leigh Woods; *Swete*, *Fl.* In open parts of the wood on Old Red Sandstone. "Leigh and St. Georges;" *Thwaites* in *Swete*. Failand, in several places. Dry sandstone pasture between Brislington and Keynsham. Clevedon; *W. E. Green*. Weston-super-Mare; *St. Brody*. Drier parts of the peat moors at Burtle, Edington, and Shapwick. "Dry banks and pastures, frequent;" *Fl. Bathon*, 1834. But the Rev. L. Jenyns, in 1866, stated that *S. sylvaticus* was then very rare about Bath. He had never seen it nearer than Hanham.

### 539. *S. viscosus* L. *Stinking Groundsel*.

Casual; on railway banks and waste ground, local. Formerly very rare, but since it arrived in the district some thirty years ago it has increased rapidly, especially of late. August.

**G.** On an embankment of the S. Wales railway under Ashley Hill, first noticed there in 1892. And abundant in the cutting between Ashley Hill and Filton, 1905. On the new road from Filton Station to Stoke Gifford, 1900; *Miss Roper*. Many small plants by the riverside path below Shirehampton Ferry, Oct. 1909. Frequent about the railways at Avonmouth, from 1899; and on the line thence to Severn Tunnel in plenty. On a shingly beach by the Severn below New Passage; no doubt introduced during construction of the railway near at hand. By 1905 it had spread along the new Badminton line as far as Coalpit Heath. In 1906 I saw some plants in a stubble-field a mile east of Winterbourne Station; and on Yate Common in 1909.

**S.** A few plants on the site of abandoned iron-works near Ashton Gate, 1907-1911. On the Portishead railway, persistent, first noticed in 1882 by the Rev. W. H. Painter. By a quarry on the Court Hill, Clevedon, 1876 and 1880; *Mrs. Lainson*. Clevedon, in two places, 1882 and 1883; *W. E. Green*. On the peat moors, sparingly; *Mrs. Gregory*. Steep Holm, 1883; *John Storrie*.

*S. viscosus* seems to have approached this country from the North. Light-foot wrote in 1773 that he had not yet found the plant in England, but was cultivating it from Scotch seed; probably obtained on the coast of Fife, where he had recorded its occurrence. By the end of the century the new species had reached the fen-land of Ely, and had been detected in Kent. A few years later it was swiftly, if sparsely, distributing itself over the Midlands and Eastern Counties. But to Western botanists it remained unknown until quite recently. I can find no mention of its presence in Herefordshire, Gloucestershire, Somerset, Dorset, Wilts, Devon, or Cornwall prior to the date of our own records.

### [*S. squalidus* L. *Oxford Ragwort*.

Casual. One large plant on Wapping Wharf, Bristol Harbour, G. Aug. 1911! *Miss Roper*. Not a native of this country, but has been long established on old walls in several places. It is undoubtedly spreading from Oxford along the lines of the Great Western Railway by way of Didcot, Reading, etc.; and having lately appeared at Badminton, is quite likely to become better known at Bristol.]

**540. *S. crucifolius* L.** *Hoary Ragwort.*

Native; chiefly on ditch-banks and waysides in the lowlands, frequent. I was informed by the late Mr. A. E. Burr that at Bath this species always grows on hills and dry banks, not at all in damp places; a statement supported by the localities mentioned in the *Bath Flora*. August and September.

**G.** St. Philip's Marsh, and the bank of Avon above and below Bristol. Hedge-bottoms and waysides near Avonmouth. Hallen. Compton Greenfield. Stoke Gifford. Aust. Pilning. Plentiful on poor claylands along the Midland line north of Yate. Rayless plants, near Coalpit Heath, 1904; *Miss Roper*.

**S.** Ashton Fields; *Miss Atwood* in *Swete*. Between Queen Charlton and Publow, on the Lias. Between Norton Malreward and Stanton Drew, also on Lias. Hillside above the left bank of the Chew at Compton Dando; *D. Fry*. Portbury. Portishead. Yatton. Clevedon; *W. E. Green*. Weston-super-Mare, where the ray is often absent. Berrow and Brent Knoll. Common to the south of Wells; *Miss Livett*. On Beacon Hill; Barrow Hill; above Combe Hay, etc.; *Fl. Bathon*.

**541. *S. Jacobæa* L.** *Common Ragwort.*

Native; upon rough pastures, coast sand-hills, and waste ground. Very common and generally distributed. Plants wanting the ray were noticed at Worle, S., in 1880. July to September.

**542. *S. aquaticus* Hill.** *Marsh Ragwort.*

Native; in marshy places, frequent.

July to September.

**G.** Valley of the Trym below Westbury. Meadows between Henbury and Brentry. Oldbury Park near Frenchay. Hallen. Filton Meads. Compton Greenfield. Lawrence Weston. Pilning. Charfield.

**S.** Marsh near the Avon under Leigh Woods. Bedminster Meads. Portbury marshes. Whitchurch. Pensford. In many places about Stanton Drew and Norton Malreward; *D. Fry*. Nailsea and Kenn Moors. Clevedon. The Max meadows by Winscombe. Ditch-banks under Brent Knoll. Wedmore. Peat Moors. Wookey. Wells. Damp places, frequent; *Fl. Bathon*.

The form with lyrate lower leaves is *VAR. pennatifidus* Gren. & Godr. *Miss Roper* has it from Weston-in-Gordano; and Mr. Bucknall from Stone and Falsfield. Roadsides north of Wickwar.

**543. *S. saracenicus* L. *pro parte.*** *Broad-leaved Ragwort.*

Alien or Denizen; almost entirely confined to watersides, frequent. Established in Somerset for more than two centuries, but apparently absent from our Gloucestershire area. July to September.

**S.** Keynsham; *C. E. Broome* in *Fl. Som*. A large patch on the left bank of the Chew below Publow Church; *D. Fry*. Again on the same side of the Chew at Compton Dando, in profusion for about a quarter of a mile. Several plants on the inside of a hedgerow between Midsomer Norton and Paulton! *D. Fry*. Abundant in an orchard near Clapton Wick, on the road from Clevedon



to Clapton-in-Gordano ! *D. Fry*. A large quantity in a stream running by the road from Wells to Shepton Mallet, near the village of Croscombe, 1880 ; *Miss Livett*. Still there in 1909 ; *F. Samson*. Between Wells and Glastonbury ; near Shepton Mallet ; and other places in Somersetshire ; *Withering*, ed. iii, p. 726 (1796). Bank of Avon at Bathford ; *Herb. Flower*. A small patch by the river near the Aqueduct,  $3\frac{1}{2}$  miles south of Bath, 1886 ; *A. E. Burr*. The two last-mentioned localities were recorded many years earlier in the *Fl. Bathon*. Valley between Mells and Great Elm ; *Rev. S. Laing*. Mells Park ; and Old Ford ; *G. Horner* in *Fl. Som*. Burnham ; *J. C. Collins* in *New Bot. G.* (1837).

Earliest record :—" *Virga aurea maxima radice repente*, D. Bobart. *Broad-leaved indented Golden Rod*. Found plentifully growing by the Side of a small River between Wells and Glastonbury by Mr. Bobart." [circa 1680.]—*Ray, Syn.* ed. iii, p. 177.

Our plant has a creeping rootstock with elongated stolons, and so is the variety " *radice maxime repente* " mentioned but not named in the *Sp. Plantarum* ed. 1. It would be more correctly classed as *S. fluviatilis* Wallr. = *S. salicetorum* Godr. *Fl. France*. Linneus' *S. saracenicus* = *S. Fuchsii* Gmelin, is another plant with a different mode of growth, and quite other habitats, frequenting moist places in woods and wood-borders in alpine districts up to the limit of trees, say 5–6000 feet.

[*S. Cineraria* DC. *Cineraria maritima* L. An ornamental species from the Mediterranean, often cultivated, and long known as an occasional "escape." The foliage is snowy-white felted beneath.

"A small clump of this plant grew for several years—1893 to 1902—on a rocky bank of the Bristol Road opposite the Friends' School, Sidcot. I took a plant of it into my garden, where it flourished for two or three years ; but died, with the colony on the Bristol Road, in the winter of 1902–3 ;"—*W. F. Miller*.]

[*Cacalia hastata* W. Alien ; from Northern Russia. Established on the right bank of the river Avon at Batheaston for at least 40 years. I saw it last in 1906. A rare interloper, I suppose, as it has no place in the alien lists of Dunn or Druce.]

## BIDENS Linn.

### 544. *B. tripartita* L. *Trifid Bur-Marigold*.

Native ; in watery places, frequent.

August and September.

**G.** Stapleton Mills ; *T. B. Flower* in *Phytol.* I, p. 68. Bank of Frome, Stapleton ; *Herb. Stephens* and *Herb. Cundall*. Formerly plentiful in Glen Frome ; *Dr. Atchley*. Pondside in Oldbury Park near Frenchay, 1883. St. Philip's Marsh, 1882–5, now gone. By the Avon at Crew's Hole ; *Stephens* in *Swete*. Siston Common, 1906. Yate. Roadside swamp between Rangeworthy and Hall End.

**S.** Formerly on a farmstead below Portbury Station, now lost. Ditch-banks near the Channel by Portbury. Nailsea Moor ; and Saltford ; *D. Fry*. Clevedon ; *W. E. Green*. Canal banks near Paulton and Camerton. Wells. Burnham. Rather common on the peat moors. In several places by the river side near Twerton and Newton Bridge ; *Fl. Bathon*.

### 545. *B. cernua* L. *Nodding Bur-Marigold*.

Native ; on ditchbanks and river-sides, frequent. Rather common on moors of the Nailsea and Cheddar valleys, as well as on the peat. August and September.

**G.** Stapleton Mills; and Hanham; *T. B. Flower* in *Swete*. Bank of the Avon by Hanham Weir, 1904. Beck's Pool, Frenchay, 1904. Swamp on the lower side of Siston Common, 1901, and 1910. Near the Old Mill at Iron Acton, 1906; *Miss Cockle*. In a large farm pond near Hall End. Plentiful in the Leechpool, 1911.

**S.** Abundant in 1881 on the moors near Yatton, where it had not previously been observed; *Miss Winter*. Plentiful both at Yatton and Tickenham; *D. Fry*. Kenn Moor! *S. T. Dunn* in *Fl. Som.* Marsh ditches near Draycott, Wedmore and Wells; abundant in some of them, and also on the peat moors. Plentiful in 1902 on Clapton Moor. At the Ubley end of the Yeo Reservoir; *Dr. Gough*. "Near Bath;"—*Mr. Walker* in *Fl. Bathon*.

This species is cited for North Somerset with a query in *Topogr. Bot.*; and the query is not removed in the *Supplement* issued in 1905 by Mr. A. Bennett.

[*Grindelia squarrosa* *Dunal*. Alien; from N. W. America. Sparingly on old colliery rubble between Kingswood and Hanham, 1880 and 1881.]

[*Ambrosia artemisiæfolia* *L.* Alien. A native of North America which seems to reach this country with imported grain and becomes distributed with siftings and dock-sweepings used as food for fowls. In this way it has established itself throughout the European continent. The genus belongs to an aberrant group of Composites by reason of peculiarities that are well described by Mr. Chas. Bailey in *Manchester Memoirs*, vol. xlvii. (1902), No. 2.

**S.** Waste ground by Portishead Dock, Oct. 1900 to 1907. By the light railway at Burrington Station, Sept. 1902.]

[*Xanthium spinosum* *L.* Alien. A cosmopolitan species of which the original home cannot now be determined. Casual on rubbish-tips and mill-refuse, rather frequent. Flowering in late summer it seldom perfects seed, save in the warmest autumns; and so cannot spread far from any spot where it may have been introduced; nor hold its ground more than two or three years at most.

**G.** Nine or ten plants on dredgings from the bed of the Avon deposited in the Black Rock Quarry; flowering in October and November, 1884. One large specimen by the mill below Combe Dingle, 1886; *L. W. Rogers*. One was fruiting in St. Philip's Marsh, November, 1900. Many plants there in Sept. 1901.

**S.** The Station-yard, Portishead, 1905. Some there in fruit, Nov. 1906; and in 1907. Casual near Frome; *H. F. Parsons* in *Fl. Som.*]

[*Rudbeckia laciniata* *L.* Alien. A native of North America from the Gulf of Mexico to Canada; sometimes found astray in this country.

**S.** About a dozen stems growing up through a low thorn hedge by the roadside below Portbury Station, Aug. 1880. (*Journ. Bot.* 1881, p. 116.) The plant soon disappeared.]

[*Encelia mexicana* *Mart.* Alien. Very rare. Its occurrence at Bristol is the only one mentioned in *Dunn's Alien Flora*.

**G.** St. Philip's Marsh, Nov. 1900.

**S.** Dustheap at Twerton below Bath, 1900.]

[*Coreopsis aristosa* *Michx.* Alien. From North America. Not recorded in this country except at Bristol.

**G.** St. Philip's Marsh, 1900! *C. Bucknall*.]

[*Schkuhria abrotanoides* *Roth.* Alien. From Peru. Found with the preceding by Mr. Bucknall at the same place and time.]

## CARLINA *Linn.*

### 546. *C. vulgaris* *L.* *Carlina Thistle.*

Native; on downs, hilly pastures and heaths; rather common.

July to September.

**G.** Clifton and Durdham Downs, on rocky slopes above the Avon; and a few other spots where there is but little trampling. Penpole Point.



Kingsweston Down. Limestone rubble heaps about the Avonside quarries. Almondsbury Hill.

**S.** Open rocky ground in the limestone area of Leigh Woods. Failand. Barrow Hill. Rough rocky pasture above Bourton Combe. Backwell Hill. Broadfield Down. On the ridge from Portishead to Walton-in-Gordano, and the old pasture land along the coast. Hills about Clevedon. Wavering Down. Worle Hill. Uphill. Bleadon and Brean Down! *E. S. Marshall*. Slopes of Mendip above Burrington, Axbridge, Cheddar, and Draycott. Not infrequent on the upper parts of the hills; *Fl. Bathon*.

Acauline plants are frequent.

"Dying, it does not soon decay, for the leaves and even flowers—which are of the nature of an Everlasting—battered and bleached, stand many a wintry storm."—*Sir J. E. Smith*.

### ARCTIUM *Linn.*

#### 547. *A. majus* *Bernh.* Greater Burdock.

Native; on roadsides and waste ground; frequent but much scarcer than the next species. August and September.

**G.** Here and there on old quarry ground and field borders by the Avon from Crew's Hole up to Hanham Weir, as pointed out to me years ago by Mr. D. Fry. St. Philip's Marsh, 1909! *Miss Roper*. Streamside near Damery Bridge! *C. Bucknall*.

**S.** Brislington. Stockwood. Publow and Keynsham; *D. Fry*. Queen Charlton. By the Avon at Newton St. Loe! *Miss Roper*. Clevedon, 1888! *Mrs. Lainson*. Bank of Avon above Bath; *Herb. Dunn*. Glastonbury; *Fl. Som.* Roadsides between Brent Knoll and Berrow.

As in other districts, most of the above localities are near water, although the plant never wets its roots. It occurs, as a rule, singly and widely apart. We find that in *majus* the root-leaf petiole is always solid, and in *minus* this is so occasionally. Certainly the petiole is not invariably hollow on the Lesser Burdock. Babington must have been aware of this: he lays no stress on the character for the latter species.

Rouy and Foucaud (*Flore de France*) employ a new character, that seems useful, in describing *A. majus* and its hybrids:—"à bord du disque épigyne ondulé-plissé." Mr. Bucknall and I find this to be well marked so far as regards undulation—apparently due to prolongation of the ribs of the fruit—but we cannot make out any plaiting or folding of the disk-margin.

#### 548. *A. minus* *Bernh.* Lesser Burdock.

Native; in hedgerows and waste places. Very common. July to September.

#### 549. *A. pubens* *Bab.* *Lappa pubens* Boreau.

Native; in woodland and waste ground, frequent. July to September.

**G.** Clearing in a wood near Blaize Castle, 1904. Between Pilning and Olveston; and roadside north of Tockington; *C. Bucknall*. Near New Passage,

1864; *Herb. St. Brody*. Still there (on Severn Beach) 1906! *C. Bucknall*. Roadsides near Thornbury and Milbury Heath! *Miss Roper*. Leechpool Farm, north of Yate. Frequent on wood-borders about Hillsley and Hawkesbury.

**S.** Beggar's Bush Lane! *C. Bucknall*. Leigh Woods! *Miss Roper*. Roadsides in Norton's Lane and elsewhere by Clevedon, 1883; *T. R. Archer Briggs*. On the cliff, Walton-by-Clevedon! *Miss Livett*. Worle; and Brean Down! *F. Samson*. Dunball; *D. Fry*. Riverbank, Bath; *Herb. Dunn*.

*A. nemorosum* Lej. does not seem to grow in the district.

I have the impression, shared with my fellow workers, that *A. pubens* is truly distinct. At the same time, intermediates are met with (they are possibly hybrids) which appear to connect the plant with *A. minus*. Messrs. Groves' arrangement of the genus in the last edition of the *Manual* is, I should think, the best of many that have been framed. Mr. W. H. Beeby had an instructive paper in *Journ. Bot.* 1908, p. 380, in which he cleared up much of the confusion that attaches to the name "intermedium"—used by several authors for differing plants. Mr. Beeby found that the *intermedium* of Lange is a mixture, compounded chiefly of the hybrid *majus* × *minus*. That being so, the name should not be retained as a synonym for *A. pubens* where it now stands in Syme's *Engl. Bot.* and Babington's *Manual*, but had better be dropped. The undoubtedly existing hybrids will have to be recognized as such, and given a suitable place in our descriptive books.

These Burdocks are awkward, unattractive plants. I find that few botanists give them much attention. The common excuse is that "there is usually more tempting material to put in one's box; and they take up so much room in the herbarium." Quite so. And the plants have to be examined in several stages of development, to see if the phyllaries exceed the flowers and if the heads be open in fruit. Then, should the specimen be a trifle too far advanced when collected (the terminal shoot only must be chosen) its fruits may all drop out and the heads prove of little value. To the impatient these things are rather trying!

### SERRATULA Linn.

#### 550. *S. tinctoria* L. *Saw-wort*.

Native; in bushy places both on limestone and pennant, and in peaty meadows. Frequent, but seldom abundant except on the poor clay soils to the northward. July to September.

**G.** St. Vincent's Rocks and Clifton Down; *Sweete, Fl. and Herb. Flower*. Bushy slopes of Durdham Down near the Gully, rather plentiful. Moist meadows in Filton Meads. Here and there on the wooded bank of Avon between Crew's Hole and Hanham Ferry. Hanham Woods, 1851; *Herb. Jenyns*. Blaize Castle Woods. Rather frequent in rough pasture about Frenchay; *H. J. Wadlow*. Leap Bridge near Moored. Field-borders, Alveston. Little Stoke. Northwoods, near Winterbourne, sparingly. Roadsides, etc. about Tortworth. Wood-borders in the South Ridings, east of Wickwar, abundant. Wotton-under-Edge. Dursley.



**S.** Slopes of Leigh Woods above the Avon. Cliff path near Portishead; *Miss Livett*. Weston-in-Gordano; and Sandford Hill; *D. Fry*. About the Cleeve Woods and woodland between Yatton and Congresbury. Above the Shuteshelve tunnel near Winscombe. Meadows in the Max valley. Hillside between Cheddar and Axbridge; *J. G. Baker* in *Fl. Som.* Hutton; and Milton; *St. Brody*. Worlebury Hill, in small quantity. With white flowers on the hillside at Weston-super-Mare, Aug. 1850; *Herb. Cundall*. Hedgebanks between Chew Stoke and Compton Martin. Meadows of the Yeo valley; *Dr. Gough*. Turf-moor near Edington Station, 1841; *Herb. Clark*. Still there in 1907. Vobster near Mells; *Rev. S. Laing*. Woods near Wells; *Miss Livett*. Several localities near Bath are given in *Fl. Bathon*.

A form with simple, sub-entire leaves, from a grassy lane near the Leechpool (1910, *Miss Roper*), is doubtless the *var. integrifolia* Koch.

### CENTAUREA Linn.

#### 551. *C. nigra* L. *Black Knapweed*.

Native. Everywhere abundant in bushy grassy places and pastures; often on waysides and hedgebanks. July to September or later.

A most variable plant. Firstly, there is the type, commonly a tall branched plant with very black discoid anthodes, the florets being all of nearly equal length. This is abundant in rough, moist meadows of the lowlands. Secondly, we have a radiant form with handsome heads of long, spreading florets, which is a decided ornament of our open hillsides and upland pastures, whether on Mendip or on the Cotswolds. This is the *var. radiata* of our older lists. Corresponding plants on the Continent have been recognized as distinct by French and German botanists; possibly with reason, for their examples may not exactly fit in with ours. We find it often of low stature with a simple stem bearing a single head, and thus it has a peculiar habit and facies. But it seems to present no tangible character in addition that might make a separation justifiable. Then, thirdly, comes the variety *decipiens* of Thuillier and Syme, equal to the *C. nigrescens* of Prof. Babington. This, too, is a radiant plant, said by the latter botanist to be easily distinguishable from the ordinary radiant form, "although hardly to be separated by characters." It is to be known by the appendages of the phyllaries being narrower, with shorter teeth and not wholly covering the phyllaries. The involucre are also paler in colour than those of the type. This variety is found chiefly in the southern counties. I know it in Dorset; but having failed after countless observations to make it out in this district, I do not claim it as a Bristol plant. Still, other botanists have held different opinions. My late correspondent, Mr. A. E. Burr, reported that *decipiens* was quite common about Bath; and Mr. D. Fry considered that he had it near Clevedon. The records queried by Swete (as *C. nigrescens*) for St. Vincent's Rocks and Bishport, and that by Mrs. Lainson for Nailsea, were made many years ago at a period when the simple-stemmed and radiant ordinary forms of *nigra* were often included in Babington's *nigrescens*. Dr. Syme in *Engl. Bot.* states that he had seen his plant in both Gloucestershire and Somerset;

but the author of *Fl. Som.* could not satisfy himself that *decipiens* was present in his county. There is matter here for some further careful investigation.

Beyond the above-mentioned differences in colour of involucre, length of the outer florets, and branching of the stem, *C. nigra* varies frequently in hue of the corolla, and very markedly in the breadth, outline, and tooting of its leaves. Attempts have been made to pick at least four forms out of our inconstant aggregate, but nothing in any degree satisfactory has resulted from this analytical diversion.

Mr. A. E. G. Way has successfully cultivated in his "wild garden" a very beautiful variation in which the marginal flowers are pure white and the remainder purple. This he found in the "Wild Country" towards Barrow Gurney in 1907. In *Journ. Bot.* 1908, p. 390, mention is made of a similar plant with white ray and red centre, found in Dorset by the Rev. H. H. Wood.

### 552. *C. Cyanus* L. *Corn Blue-bottle.*

Colonist, or more correctly Casual with us; chiefly on waste ground, rubbish tips, and the borders of cultivated fields; rare. June to September.

**G.** St. Vincent's Rocks; and Horfield; *Swete, Fl.* On dredgings tipped in the Black Rock Quarry, 1883-4. Sparingly on some colliery refuse near Kingswood, 1884-6. On made ground in St. Philip's Marsh, 1899 to 1909.

**S.** Cornfield between Failand and Abbotsleigh, 1879. On ballast at St. Anne's Park, 1905; *Miss Roper*. On mill-refuse at Portishead, 1902 to 1909. Yatton; *Miss Winter*. Highbridge; *Miss Peck*. Rarely at Wells; *Miss Livett*. "In cornfields, frequent;" *Fl. Bathon*. But that statement was impugned in his *Lecture* by the Rev. L. Jenyns, who said he could never find the plant about Bath.

These scanty notes and the fact that there is not a single personal record in *Fl. Som.* show how scarce a plant this is in the neighbourhood. And botanists in the counties of Worcester, Hereford, and Devon tell a similar tale. I remember as a boy gathering bunches of its flowers in the great expanse of cornfields that then enveloped the town of Dorchester on the south and west. At that time there was not a yard of permanent pasture between the Came plantations, Maiden Castle, and the Bridport Road. But now the land is in a very different condition; all cornfield weeds have well-nigh vanished; and in the last edition of the *Dorset Flora* I find no mention of the Blue-bottle in all that area.

[*C. seuseana* *Chair*. Alien. A rare Continental species allied to the preceding, but the large flowers are of a darker blue and the leaves more entire. Abundant on rubbish in St. Philip's Marsh for several seasons, 1904-7. Now gone. Apparently the sole instance of its occurrence in this country. The name is from Mont Seuse near Gap (Hautes Alpes). I have no wild specimen to compare, and am not likely to obtain one, as the plant is confined to a small mountain area. My identification, therefore, must be received with caution.]

### 553. *C. Scabiosa* L. *Greater Knapweed.*

Native; on the borders of fields and in dry waste places; very common.

July to September.

The beautiful variety with white flowers is constant on St. Vincent's Rocks, and on the Dial Hill, Clevedon. There is a good deal of it, too, on the hill



above Wotton-under-Edge. A single fine plant by the railway between Ivory Hill and Coalpit Heath Station, 1905. One amongst Lucerne on Tickenham Hill, 1906. First noted at Clifton in 1853 by Mr. J. H. Cundall. But it is not a modern sport. Johnson saw it on his western journey in 1634 :—"Jacea foliis dissectis, flore albo, in arvis et pratis, sed rarior. *White Knapweed*."—*Mercurius Botanicus*.

I suppose the following quotation from Merrett's *Pinax* (1667) relates to some conspicuous form of this species, though were it not for "foliis dissectis" it might well stand for the radiant state of *C. nigra*. "*Jacæa nigra* vulg. fol. dissectis flore amplissimo . . . a mile below Bristol on the South side of the River, and in upland meadows and pastures near the Bath."

[*C. paniculata* L. Alien. Very rare.

On a small heap of colliery shale at "Holly Gess" near Kingswood, from 1881 to 1884. It was not observed afterwards, and the heap has since been carted away. A Southern Europe species, not native in Britain although it may be so in Jersey.]

#### 554. *C. solstitialis* L. *Yellow Star-Thistle*.

Alien or Colonist ; on cultivated and waste land ; rare. July to September.

**G.** Several plants in St. Philip's Marsh near the Avon in 1898 ; *J. C. Waterfall*. Abundant on the Feeder Canal side of the Marsh in 1904. Still there in 1906 and 1908.

**S.** Casual at Twerton-on-Avon in 1897 ; *S. T. Dunn*. In good quantity with sown grasses on Hampton Down, Bath, 1896 ; *D. Fry*. About a dozen large plants on sand near the Lighthouses at Burnham, Sept. 1883 ; probably introduced with Lucerne. The spot had apparently been levelled for cultivation at some time, but had become entirely waste. Two or three plants there also a year later. Three in another place among the sand-hills in 1888. Portishead Station-yard, every year since 1905.

[*C. melitensis* L.

Alien or Casual ; on much the same footing as the last species, and perhaps as well worthy of a number, for it seems to be always with us. It is a common weed in South-East Europe, and of frequent occurrence in this country on mill-refuse and tips of city rubbish. Persistent as a ballast plant at Cardiff.

**G.** On a colliery heap near Kingswood with *C. paniculata*, but it lasted at the spot a few years longer. On dredgings from the Avon and Floating Harbour deposited in the Black Rock Quarry, 1883-4. A dozen or more plants in St. Philip's Marsh for many years past, and distinctly more plentiful there of late.

**S.** A patch by the Avon near the Bath Gas Works, Oct. 1895 ; *A. E. Burr*. Two plants in an old lias quarry near Twerton, 1904. This quarry is the one described by Mr. S. T. Dunn in *Journ. Bot.* 1897 as a remarkable site for barley-sifting aliens. It is not so prolific now. Sparingly on a rubbish-tip at St. Anne's, Brislington, 1907. Portishead Station-yard, 1908-9. "There are specimens of this plant in the Nat. Hist. Mus. Herbarium, South Kensington, gathered on the banks of the Severn, Gloucestershire, in 1869."—*E. G. Baker*.]

#### 555. *C. Calcitrapa* L. *Common Star-Thistle*.

Alien or Casual with us ; rare. August to October.

**G.** Three or four tall, much branched plants at St. Philip's, Bristol, 1904 ; and several there every year since.

**S.** In the Station-yard, Portishead, on mill refuse, every year since 1905. On the old quarry ground near Twerton, mentioned above, 1903 ; *Miss Martin* and *Miss Peck*.

An abundant weed of the Mediterranean region, where alone it is really "common." Probably native in South-East England. Its history in Kent extends over nearly three centuries, and in Middlesex almost as long; but while the plant is still frequent on the Kentish coast it now appears to be lost from the metropolitan county. In South Somerset it has been known since about 1830 (*New Bot. G.*). Mr. Murray thought it might be indigenous in the county, and Watson, in *Topogr. Bot.*, did not question the claim. Together with the Yellow Star-Thistle it has occurred about the Gloucester Docks, whence there are specimens in *Herb. St. Brody*.

A straw-coloured star is formed by the long sharp thorns of the earliest involucre in the Spring, long before the flower head is mature and whilst the plant is quite small and stemless. In that state it has a very curious look and puzzled me at a time when I was unacquainted with the species.

### ONOPORDUM *Linn.*

#### 556. *O. Acanthium* L. *Cotton Thistle.*

Native probably, on the coast sands of North Somerset; casual elsewhere inland. Very rare. July and August.

**G.** Waste ground near the deserted Avonside brick-works at St. Philip's, Bristol: a few large plants from 1903 to 1909. At least twenty plants on Kingsweston Down, 1910 and 1911, at a spot where the turf had been removed and replaced by soil from some nursery or garden.

**S.** Portishead Station-yard, 1905; *Miss Livett*. Several plants there in 1906 and 1908. "Rare at Weston-super-Mare; grows on waste ground near Sand Point."—*St. Brody, Fl. Weston* (1856). This record remained unconfirmed until 1907, when Miss Roper came upon at least fifty plants in a sandy tract north of Kewstoke Bay and not far from the root of Sand Point. In 1909 quite as many were seen there in full fruit at the end of August. Near the Church, Berrow; *J. C. Collins* in *New Bot. G.* (1837). Near Berrow Church, 1834; *Herb. Clark*. A specimen from Berrow, too, is in *Herb. Flower*. In 1883 Mr. Murray saw one plant there (*Fl. Som.*). In 1885 Mr. D. Fry reported it from the same spot, and in August of that year I saw five plants. In 1886 there were a few small ones near cottages on a roadside common, between the church and the village; and eight or ten more on the sand-hills northward towards Brean. Still plentiful at Berrow, 1890; *D. Fry*. I have no later note from that locality. In the sand at Burnham, near the Station, 1867; *W. Tuckwell* in *Fl. Som.* At Burnham, 1910; *Rev. A. Ley*. Waste ground by Highbridge Station, 1894; *D. Fry*.

Mr. Dunn (*Alien Flora of Britain*, p. 120) says that the Cotton Thistle is a roadside weed throughout the whole of Europe and Western Asia, and that no distinctly natural localities are given for it in any local Flora, British or foreign, that he had consulted. He thinks, however, it must be certainly indigenous on the dry sandy hills of Southern France. Similarly, I see no reason to doubt that the plant is truly native on our Channel shore, where it is found remote



from human interference. Although its appearances may seem temporary and uncertain, yet the species shares with some others the curious property of cropping up again in the same spot after very prolonged absences; a fact that should tell in its favour, since re-introduction in every case is quite improbable.

The specimens found on city rubbish at St. Philip's, and on the mill refuse at Portishead, are obvious introductions. They differ from the native plant in some respects; being taller, less branched, greener, and less cottony. They probably belong to *VAR. viride* Michet, which has been reported from similar situations.

### CARDUUS *Linn.*

#### 557. *C. nutans* L. *Musk Thistle.*

Native; in waste places, particularly on limestone, rather common.

June to September.

**G.** Clifton and Durdham Downs. Shirehampton Park. Kingsweston Down. Blaize Castle. Eastfield; *Miss Roper*. Kingswood. Almondsbury. Tytherington Hill. Stinchcombe Hill.

**S.** Leigh Down; there were formerly plants with white flowers near the Abbotsleigh Road on ground now enclosed. Pensford and Stanton Drew, in several places; *D. Fry*. Open ground on the ridge from Portishead to Walton-in-Gordano, and on the hills about Clevedon. Hills between Yatton and Congresbury. Broadfield Down. Loxton. Worlebury Hill at Weston-super-Mare. Dolebury Camp. Winscombe, Cheddar, and generally on the Mendip hill pastures, where it makes a fine show. Many white-flowered plants on the hills above Wells; *Miss Livett*. Abundant on the coast near Burnham and Brean. Steep Holm. Common on the hills about Bath.

#### 558. *C. crispus* L. *Wetted Thistle.*

Native; on banks and roadsides, common. The prevailing thistle in the Avon valley, from Conham up to Bath: abundant also in large areas of West Gloucestershire.

July to October.

There are several forms of this thistle, which in their extreme states have received names as varieties and can be recognized. One with small crowded ovoid heads, and leaves greener beneath, is *polyanthemus* Godr. or *multiflorus* DC. Another, with broader leaves less downy beneath, and large sub-solitary anthodes, is *acanthoides* Koch (*litigiosus* Gren. & Godr.). The type has its leaves usually cottony and hoary below, and the sub-globular heads are aggregated. But it must be remembered that authors differ as to these segregates. With respect to intermediates (and there are plenty) which cannot readily be placed under one or other of the above varieties, it is best not to waste time on them. Pages of unprofitable matter have been written about them and can be referred to when desired. Hybrids, especially with *C. nutans*, are to be expected, and should be looked for. The type *crispus* is not the prevailing plant about Bristol, and the author of *Fl. Som.* thought *acanthoides* was commonest in the county. He did not, however, attempt to distinguish the

varieties. I see that Swete in *Fl. Brist.*, and Babington in *Fl. Bathon.*, put all their plants under *C. acanthoides*; treating it, I suppose, as synonymous with *C. crispus* L.

A peculiar-looking thistle sent in to the Wild Flower Competition at a Bath Flower Show as *acanthoides* was tracked by Mr. S. T. Dunn (*Journ. Bot.* 1896, p. 478) to some waste ground by Mangotsfield Station. Mr. Dunn found one or two plants only, growing with some aliens and so probably introduced at the same time. He considered them to agree with a description and figure of *C. vivariensis* Jord., a plant exclusively French. This differs from *acanthoides* in being nearly glabrous except the peduncles, which are long, almost naked, and single-headed. Rouy and Foucaud place it as a *sous-espèce* under *C. nigrescens* Villars, at some little distance from *C. crispus*. It may occur again.

**559. *C. tenuiflorus* Curtis.** *Slender-flowered Thistle.*

Native; in dry sandy or rocky spots near salt water. Locally common along the shores of the Severn and Bristol Channel, and still existing by the tidal Avon below the city. June and July.

**G.** The Old Passage. Abundant on a long stretch of shingle below the Severn Tunnel. Here and there on the river-bank below Sea Mills wherever the ground remains suitable.

**S.** My notes refer to stations dotted along the whole coast of North Somerset, beginning with a few plants at Portishead, and some on sea-banks below Clevedon. Next we find a great quantity along the cliff-edge at St. Thomas' Head, and at no great distance we get it in Kewstoke Bay. Then on Brean Down and the sands of Brean, Berrow, and Burnham. At length it reaches our limit by the Brue at Highbridge. The record in *Fl. Bathon.* is probably an error.—*Flower and Jenyns.*

**560. *C. lanceolatus* L.** *Spear Thistle.*

Native; very common everywhere.

July to September.

With white flowers on the skirt of Combe Down, Henbury, 1902; and on Yate Common, 1909.

**561. *C. eriophorus* L.** *Woolly-headed Thistle.*

Native; on dry banks and hillsides. Very rare in West Gloucestershire, but frequent in Somerset. A strikingly handsome plant when well grown.

July to September.

**G.** St. Vincent's Rocks; Dr. Dyer in *Shiercliff's Guide* for 1809. Plentiful on ground rising from the Avon in Bitton parish. Upton Cheyney; Miss Roper.

**S.** Near Bedminster coal-pits; S. Freeman in *Phytol.* I, p. 328 (1841). The plant is still in that neighbourhood, near some old pits to the east of Yanley Lane, Long Ashton. Between Bishport and Dundry. Potter's Hill by Felton; F. Samson. Backwell; Miss Livett. Weston-in-Gordano; D. Fry. Stockwood; Dr. Stephens in Swete. Ursleigh Hill. Queen Charlton. In several places near Stanton Drew and Chew Magna; D. Fry. Stantonbury Hills; L. W. Rogers.



Between Clutton and Stowey. Old grassy lane between Whitecross and Widcombe. Hinton Blewett; *C. E. Salmon*. East Harptree, 1850; *Herb. Lawrence*. Hutton. Loxton. Worle Hill; *St. Brody* and others. Brean Down, in good quantity; *E. S. Marshall*. Lansdown; *D. Fry*. South Stoke. Combe Hay. Buckland Dinham. Holwell near Cranmore; *R. V. Sherring*. In abundance at Ebbor and Twine Hill near Wells; *Miss Livett*. In plenty on the hills; *Fl. Bathon*.

First local and British record:—"Tomentosus carduus Anglicus . . . Frequens hæc in Angliæ collibus strigosis agri Sommerseti, juxta ædes generosi huius historiæ perquam avidi et studiosi Eduardi Saintloo."—*Lobel. Adv.* p. 370 (1570).

At that date the St. Loos were seated near Chew Magna. The family long ago departed, but the name is still with us as "St. Loe."

### 562. *C. arvensis* Robs. *Creeping Thistle*.

Native; on waste ground, roadsides, and pasture land; abundant and ubiquitous. The commonest of the genus and a most troublesome weed.

July to September.

Several remarkable varieties have occurred in the district as introduced aliens on tipped rubbish and waste ground. They differ conspicuously from typical *arvensis*, but not so markedly from each other. Characters common to our plants are:—leaves soft and flat, not undulated or decurrent, often white-felted below, the lowest long-stalked, all more or less sinuate and spinous-ciliate, with spines so weak that they can be handled with impunity. Anthodes long-stalked in a lax panicle. Variations among themselves depend on leaf-clothing; leaf-lobes, whether obtuse or pointed; heads, whether large or small, narrowly oblong or round, on peduncles longer or shorter. One of them has been established many years by the Avon tow-path near the Bath Gas Works. It was first noticed, I believe, by Mr. J. G. Baker in 1884, and has been observed there many times since. Miss Roper has shown me the same form gathered lower down the Avon below Newton Bridge, and I have seen it several times in St. Philip's Marsh. This was taken to be the *var. setosus* of our lists (*Cirsium setosum* M. Bieb.; *var. mite* Wimm. in *Rouy & Foucaud*), and was published by me under that name in *Notes Supplemental* for 1886. But according to G. Beck (*Fl. N.Ö.* p. 1239, quoted in Koch, *Syn.* ed. iii,) *setosus* has all the leaves entire or sub-dentate; and Syme in *Engl. Bot.* says that the leaves should be faintly sinuate or the upper ones nearly entire, and glabrous beneath. In the Bath plant most of the leaves are strongly sinuate, with the lobes and apex obtusely rounded and furnished with short spines at the tips, and white-felted beneath—characters which take it to the *var. obtusilobum* f. *subincanum* G. Beck.=*var. vestitum* Koch, or *argenteum* Peyer. Another plant occurring on waste ground and cinder-heaps at Twerton-on-Avon; on Wapping Wharf, Bristol; and by Ashton Avenue, is the f. *subviride* of the same variety. A third, which flourished several years in Portishead Station-yard and in St. Philip's Marsh (1904-8), appears to be the *var. commune* f. *incanum* Fischer. This differs but slightly from *vestitum*. In the *Flore de France* of *Rouy & Foucaud*

we have type *arvensis* and five varieties, each of which the authors state has three sub-varieties ! The botanist who wishes to determine an *arvensis* plant with precision, may think that he can now do so to a nicety. Still, I fear that at best the naming of these curious forms from descriptions, without comparison with authors' specimens, cannot be really conclusive. It may be better to neglect trifling discrepancies and be content with the less intricate classification of our own books.

I had the Twerton plant in cultivation for a while. It did not do well, and after two or three years reverted to type *arvensis*. A repetition of the experiment cannot be recommended, for it seems hardly possible to extirpate the creeping roots of these plants when done with. The smallest fragment left in the soil has vitality enough to found a strong colony in a surprisingly short time.

A hybrid with *C. pratensis* is recorded in *Fl. Som.* from Shapwick peat moor. I have seen a white-flowered *arvensis* on Tytherington Hill.

### 563. *C. palustris* L. *Marsh Thistle.*

Native; in meadows, marshes, and damp woodland; very common. Is more luxuriant on moist ground, but seems quite as much at home on a dry hillside. Our tallest thistle, and after *arvensis* and *lanceolatus* the most abundant.

July to September.

The white-flowered form is frequent; and there are spots, as on Old Down above Tockington, G., and the slopes of Mendip above Shipham, S., where it is hard to say which colour is more plentiful.

### 564. *C. pratensis* L. *Meadow Thistle.*

Native; on boggy commons, pastures, and peat moors; locally plentiful.

June and July.

**G.** Filton Meads; formerly abundant but now confined, I think, to one pasture only. Peaty field near Patchway; and in another towards Alveston Old Church. Compton Greenfield. Meadows between Pucklechurch and Mangotsfield, plentiful; *Swayne* in *Withering* (1796). Yate Common. About the Leechpool, north of Yate.

**S.** Damp fields above the older reservoirs near Barrow Gurney. In a boggy spot, since drained but still producing the plant in 1911, near Failand Hill House, with other bog species; *D. Williams*. Nailsea Moor, very abundant in two enclosures at least. Kenn Moor near Yatton. Peaty fields in the valley at Weston-in-Gordano, and by Walton Drove; *D. Fry*. Ill-drained rushy pastures N.W. of Churchill. About Max Bog near Winscombe in several places. Downside Common near Edford. Near Ashcombe Lodge, Weston-super-Mare; *St. Brody*. On peat near Wells; *Miss Livett*. Well distributed throughout the peat moors south of Wedmore. There is no locality for the plant within some miles of Bath.

The country between Mangotsfield and Pucklechurch in which Swayne worked so many years ago must be now in a greatly altered condition as regards drainage, and some of the uliginous species he met with in marshes at that



period would have long since died out. I have not found the Meadow Thistle just in the direction he describes, but it still grows in some swampy ground a mile and a half N.W. of Shortwood.

The leaves of this species vary in extent of toothing. Sometimes the divisions between the lobes are much deeper than usual, and the lobes may be 2- or 3-cleft and more distinctly spinous. When variations of this kind happen to bear two or three heads instead of the customary solitary one, hybridity may rather naturally be inferred, and such plants have been reported to me as hybrids with *arvensis*, etc. So far, however, I have found the essential characters of *pratensis* to be still ascendant in the specimens submitted to me. But, as mentioned under *C. arvensis*, Mr. Murray was satisfied with one "many-headed" hybrid of *pratensis* obtained from the peat moors.

**565. *C. acaulis* L. Ground Thistle. Dwarf Thistle.**

Native; in dry hilly pastures, common on the limestone Downs at Bristol and distributed throughout the district. July to September.

VAR. **caulescens** DC (under *Cirsium*). *Cnicus dubius* Willd.

Produces a stem, usually simple but occasionally branched, up to nine or ten inches in length; otherwise as in the type.

**G.** Durdham Down; and New Cut; *Miss Atwood* in *Swete, Fl.* St. Vincent's Rocks, 1866; *Herb. St. Brody*. Goose Green, near Siston; *Misses Cundall*. Hill above Wotton-under-Edge, abundant and persistent. Between Wickwar and Hawkesbury. In several spots on Breakheart Hill above Dursley. Oldbury on the Hill; *Miss Roper*.

**S.** Open spots in Leigh Woods near the Abbotsleigh Road. Known there many years until the ground was built on. Abundant in a field at Keynsham near the Bristol Road; *D. Fry*. Backwell Common and Tickenham Hill, 1904; *Miss Roper*. Still there at both spots in 1909. Callow Hill near Sidcot. On Mendip above Draycott. Houndstreet.

This variety is usually found among long grass, or in moist, shady places; and so may be a state induced by deeper and damper soil. It seems, however, to be permanent. The stem not infrequently bears two, three, or four heads at the summit on short pedicels. Speaking generally, the plant shows no trace of hybridity; but much branched examples, which are rare, may be hybrids with *C. arvensis* and come under var. *β. dubius* Bab. non Willd. = X *C. Babingtonii* Rouy.

**MARIANA Hill.**

**566. *M. lactea* Hill. *Carduus Marianus* L. *Silybum Marianum* Gaertn. Milk-Thistle.**

Denizen or Alien; on roadsides, waste ground, and pasture land, chiefly near the sea; rare. June to August.

**G.** About two dozen plants on Kingsweston Down, 1910, at a spot where the ground had been disturbed and turf removed; in company with Borage and

Cotton Thistles. Horfield, 1878; *W. E. Green*. Some fine plants on a sea-bank by the Severn, between New Passage and Avonmouth, 1880. Still there in 1907 and 1911. Two plants on the edge of a quarry (then being filled in) at top of the Pembroke Road, Clifton, 1898. One under a wall at Cleeve, Frenchay, 1910; but it was not suffered to remain.

**S.** In quantity, for some years, on the skirt of the Imperial Tobacco Co.'s recreation ground, Knowle. Yatton; *Miss Winter*. Three or four plants in the Station-yard, Portishead, 1909; *Miss Roper*. Three there too in 1910. Banks of the Axe, 1879; *T. F. Perkins*. Permanent on the slopes of Brean Down, where it looks quite like a native. Dr. St. Brody recorded it there in 1856, and one may see hundreds of plants in some seasons. By the road between Uphill Station and Bleadon, 1888; and in building-plots at Burnham, 1898; *H. S. Thompson*. Glastonbury Tor; and Barton St. David (casual); *Fl. Som.* On the canal bank, Bath; *Add. Fl. Bathon*.

This handsome species, at once distinguished from all British thistles by its white-veined leaves, is a wayside weed in Southern Europe and comes from the East. With us, in some instances, it may have been derived from garden culture. But on the coast it does not behave like many "escapes" that quickly disappear. As stated above, we have at least two localities where it has held the ground for a lengthened period.

[*Scolymus hispanicus* L. The Spanish Golden-thistle. A fine yellow-flowered spiny alien from Southern Europe.

**G.** One large plant on waste ground, St. Philip's, Bristol, July, 1910! *Miss Roper*. The fruit formed but did not ripen.]

### LAPSANA Linn.

#### 567. *L. communis* L. *Nipplewort*.

Native; on hedge banks, waste ground, and as a weed of cultivation. Very common. June to October.

### CICHORIUM Linn.

#### 568. *C. Intybus* L. *Wild Succory. Chicory*.

Native; in fields and waste places; frequent but thinly distributed. There are not often more than two or three plants at a spot. July to October.

**G.** With white flowers in St. Philip's Marsh, Bristol, 1904; *Miss Roper*. Bank and border of a field between Henbury and Lawrence Weston. Hanham. Abson, on field borders. Edge of a cornfield near Alveston. Wayside between Cow Hill and Olveston. Field borders and cart tracks at Elberton. Charfield.

**S.** A quarry by the Abbotsleigh Road (then unenclosed) was blue with the flowers of this plant in 1894; a rare instance of its occurrence in profusion; *Miss Roper*. Rather common on the lias about Knowle, Stockwood, Whitechurch, and Keynsham. Bishopsworth. Stanton Drew. Portbury. Roadside waste at Weston-in-Gordano; and Portishead; *D. Fry*. Yatton; *Miss Winter*. Lower slopes of the hillside between Wraxall and Tickenham, more abundant than is usual. Walton Drove; and Walton-by-Clevedon; *D. Fry*. Milton; *St. Brody*



in 1856. Still there in 1896. Common on roadsides and in cornfields; *Fl. Bathon.* North Stoke. Sparingly about Wells; *Miss Livett.*

We have no wild flower of so clear a blue as that of Succory, and were the blossoms produced in larger numbers on a more elegant support the plant would be extremely ornamental. But the heads expand only one or two at a time—"at about eight o'clock, closing at four," without stalks, hard against a rough, angular, ungainly stem; which, as Cundall remarks in his "Every-day Book," is ill adapted for the display of "bright cærulean stars." The specific name is derived from the old Greek *έντυβον*, whence we have *intybum* by Virgil and the modern term Endive. The latter is applied to a nearly allied species (*Cichorium endivia*) the *barbe-de-capucin*, largely cultivated for autumn and winter salads.

### HYPOCHÆRIS *Linn.*

**569. H. glabra L.** *Smooth Cat's-ear.*

Native; on open sandy ground; very rare.

June to August.

**S.** Sands of Kewstoke Bay! *Mrs. Gregory.* Sand-hills at Berrow; *G. C. Druce.* Brean Down; *E. S. Marshall* in *Fl. Som.*

**VAR. Balbisii Loisel.**

In Kewstoke Bay with the type! *Mrs. Gregory.*

The variety, which has all the achenes beaked, can be of no real importance; as heads of fruit, some partially and some wholly beaked, have been found on the same plant.

Perhaps not so uncommon a plant as it appears to be, since it does not readily catch the eye owing to its small size and resemblance to commoner species; and because its minute yellow heads open only, as Curtis and Bromfield observe, at about nine o'clock and close again about two. Other like Composite flowers remain expanded longer.

This vague note on *H. glabra* is by Culpeper, *Herbal* p. 269 (1652).—"It is mostly found in Warwickshire, about Bristol and Denham." Mr. Bagnall (*Fl. Warw.* p. 162) states that there is none in his county at the present time.

**570. H. radicata L.** *Long-rooted Cat's-ear.*

Native; in fields and grassy waste places. Very common. June to August.

### THRINCIA *Roth.*

**571. T. hirta Roth.** *Leontodon hirtus L.* *Hairy or "Deficient" Hawk-bit.*

Native; in poor pastures and dry heathy ground; frequent.

June to September.

**G.** Clifton and Durdham Downs, and on banks underneath by the Avon. Above Crew's Hole, on Trooper's Hill. Very abundant in poor pastures about Latteridge and Northwoods; some fields being full of it. Hillsides on the Sodbury and Hawkesbury range. Abundant on poor land between Pucklechurch and Dyrham.

**S.** Norton Malreward; Norton Hautville and Stanton Drew; *D. Fry*. Clevedon; noted by several observers. Slopes of Mendip above Sidcot, Cheddar and Draycott. Weston-super-Mare; *St. Brody*, and others in later years. Abundant on Berrow sand-hills. Burnham and Wells; *Miss Livett*. Common on the drier parts of the peat moors; *Fl. Som.* Claverton Down, Bath; *Herb. Flower*. Frequent in dry pastures and waste ground; *Fl. Bathon*.

One of the principal characters of this species is derived from the root, which should be premorse and emit from the *neck*, as well as from the end, numerous slender fibres, not at all thickened. Mr. Bucknall has from sandy soil at Berrow, N. Somerset, a form of different aspect from the common plant—very strong, with scapes approaching a foot in length—that produces a kind of tap root from which the neck fibres are entirely absent. In some respects, therefore, the specimens simulate the Continental *T. hispida* Roth., from which, however, they are at once distinguished by the normal shortly-beaked fruit. Nor do they agree with the *var. arenaria* DC.

### LEONTODON Linn.

**572. L. hispidus** L. *Apargia* Sm. *Rough Hawk-bit*.

Native; in pastures and grassy places; common and generally distributed.

June to September.

**573. L. autumnalis** L. *Autumnal Hawk-bit*.

Native; in dry pastures, on commons and poor turf ground. Very common.

July to November.

### TRAGOPOGON Linn.

**574. T. minus** Mill. *Yellow Goat's-beard*.

Native; in pastures and grass crops, apparently common but not clearly distinguished from the next species, and the distribution therefore is not exactly known.

June and July.

**575. T. pratense** L.

Native; as the preceding, in similar situations; but I believe it to be less common.

June and July.

With some misgiving I have separated the two Yellow Goat's-beards in accordance with the arrangement in Babington's *Manual*, which I follow in this book. But the majority of botanists prefer to treat them as two forms of one species connected by intermediates. This has been done by Syme in *Engl. Bot.*; and, among others, by Briggs, Townsend, and Ley in their respective works. In France, Grenier and Godron, whose opinion still carries weight, made no attempt to distinguish them; and even that great analyst the Chevalier G. Rouy (*Flore de France*, tome X) grants no more than the rank of sub-species to *T. minus*, of which (with *T. orientale*) he says that they "n'offrent pas des caractères qualificatifs suffisants pour être séparés spécifiquement du *T. pratensis* L." The fruit characters described by Prof. Babington seem very difficult to get hold of; and in specimens of the same age the anthers of the two



forms do not appear to differ in colour as is stated in the *Manual*. There can be little doubt that in any future British Flora the views above stated will prevail.

**576. *T. porrifolium* L. Salsify.**

Denizen at best ; very rare. In this country it is believed to be no more than semi-naturalized wherever it occurs—a survivor from old cultivation as a pot-herb. There are some instances of long establishment in which such introduction must have happened at an early date, as will be seen from particulars given below. In other cases the plant is a manifest casual.

May and June.

**G.** First recorded as a Bristol plant by Banks and Lightfoot in 1773. "In a meadow by the River's Side beyond the new wellhouse towards Cook's Folly." A specimen of Sir Joseph's is in *Herb. Brit. Mus.* In June, 1799, Mr. Sowerby gathered the specimen figured in *English Botany* "in the meadows below St. Vincent's Rocks, Bristol." Dr. Dyer also appears to have gathered it in 1805, and it is included by Mr. S. Rootsey in a local list published 1828. In the *New Bot. Guide* we have "Below Cook's Folly; *Worsley Cat.*" Mr. Watson explains in *Topogr. Bot.* that Miss Anna Worsley's list was antecedent to 1835. Dr. Swete, in 1854 (*Fl. Brist.* p. 43), considered the habitat to be then lost. However, many years later, after the construction of the Avonmouth railway, which must have thoroughly disturbed the soil, the plant reappeared in a spot under Cook's Folly, which certainly corresponds with the old records. It would have adjoined the nearest bit of meadow land below St. Vincent's Rocks. I first saw it there in 1878, in small quantity, and have found it several times since then in the space between the two lines of rail a short distance from their junction. During the long closure of the path from Sneyd Park to the riverside, and since the transfer of the Port and Pier Railway to the larger Companies with their more rigid notions on trespass, and the erection of their inconvenient signal-box within earshot of the spot, it has not been so easy to keep the ground under observation. One has to bear in mind that the purple goat's-beard opens its flower-heads very early and shuts them up again for the day by noon ; so that, unless one is abroad betimes, the plant may escape notice altogether should the larger heads and thicker stems (compared with the yellow species) fail to attract attention.

**S.** Plentiful on a bank by Yatton Station, 1849 ; *T. B. Flower*. Yatton Railway Station, 1853 ; *Herb. Clark*. Weston-super-Mare, Sept. 1854 ; *L. Jenyns* in *Herb.* On waste ground, Weston-super-Mare, July, 1907 ! *Mrs. Warry*.

The recurrence at intervals of *T. porrifolium* in the locality near the Avon below Bristol is probably an example of the way in which some seeds can retain their vitality for long periods, under conditions adverse to germination, until at length they become exposed to air and sun-warmth. It is highly improbable that the plant should have been re-introduced at the very spot where it originally grew, especially as it is of so rare occurrence elsewhere in the district.

"I have sene thre sundry sortes of Tragopogon, one sorte with a blewishe purple floure which is called in the West parte of Englande Starre of Hierusalem

because while the Sunne shyneth it openeth, and when it is under a clud the floure shutteth to close agayne."—*Turner, Herbal*, p. 81 (1551).

### PICRIS *Linn.*

#### 577. *P. hieracioides* L. *Hawkweed Ox-tongue.*

Native; on dry rocky banks and limestone rubble, very seldom on ploughed land; locally common. July to September.

**G.** St. Vincent's Rocks, and slopes under the Downs by the railway. Kingsweston. Oldbury Court, Glen Frome; *Miss Roper*. Bitton. Almondsbury. Many large plants with widely spreading branches—a peculiar form that does not match any described variety—on the edge of a cornfield near Elberton.

**S.** Whitchurch. Pensford. Featherbed Lane near Clutton. Between Stanton Drew and Norton Malreward; *D. Fry*. About Keynsham and Saltford in plenty. Portishead. Yatton. Clevedon. Rocks and screes on Mendip, quite plentiful in Cheddar Gorge and at Ebbor. About the hill at Weston-super-Mare. Brean sands; *Mrs. Gregory*. Buckland Dinham. Wells. Common near Baltonsborough; *Fl. Som.* Twerton. Hedges and banks on the hills; *Fl. Bathon*.

In this species, as with several near allies, secondary peduncles often overtop the primary ones. These are, in fact, *herbæ impia*e other than that to which the name was originally applied.

### HELMINTHIA *Juss.*

#### 578. *H. echioides* Gaertn. *Ox-tongue.*

Native; in waste places in the lowlands, very often in subaritime situations, rarely on high ground. Rather common. July to September.

**G.** Here and there along the bank of Avon below Bristol down to Avonmouth. "First field, Dugar Woods, July 1849" [now built over]; *J. H. Cundall*. Conham. Siston. Roadside south of Stoke Gifford. New Passage. Rockhampton. Hill. Abundant by the Severn near Oldbury, Sheperdine and Berkeley.

**S.** Lane at Long Ashton; *Swete, Fl.* About Portbury and Portishead, particularly fine and plentiful on the banks of the "Pills." Whitchurch. Keynsham. Roadside between Publow and Queen Charlton. Yatton and Clevedon; *D. Fry*. Wick St. Lawrence. Frequent about Weston-super-Mare. South Brent. Uphill; *Miss Roper*. Brean Down. Berrow. Burnham. Ditchbanks between Burnham and Highbridge. Yarley Hill, and frequent near Wells; *Miss Livett*. Hillside on oolite between Swineford and North Stoke. Batheaston, Claverton, etc. *Fl. Bathon*.

### LACTUCA *Linn.*

[*L. saligna* L. A single specimen at Weston-super-Mare, 1868; *Dr. H. O. Stephens*.]

#### 579. *L. virosa* L. *Acrid or Strong-scented Lettuce.*

Alien at present. A possible native at one time on St. Vincent's Rocks. Very rare. July to September.



**G.** St. Vincent's Rocks, "Giant's Hole," 1828; *S. Rootsey*. Giant's Hole (St. Vincent's Rocks); *Worsley Cat.* in *New Bot. G.* (1835). "I have gathered this plant by the path leading to Giant's Hole; but the place has long ago been destroyed. I have not seen it since the summer of 1853."—*T. B. Flower in litt.*, 1883. Swete stars it in *Fl. Brist.* as having been verified by inspection *in situ*. "This plant may be gathered on St. Vincent's Rocks and at Leigh. Its usual height is about two feet; it never attains the size frequently seen in the South-eastern parts of England."—*W. W. Stoddart* (1871).

**S.** Abundant for some years past on the bank of the "Pill" above Portishead Dock near railway sidings, from which the plant was probably derived. I first noticed it there in 1900. Nothing is now known of Mr. Stoddart's "Leigh" locality mentioned above. North Somerset was credited with the species in *Top. Bot.* on the authority of Mr. E. Parfitt; and there is an unlocalized entry for Somerset in *New Bot. G.* by Dr. A. Southby (formerly Gapper). Mr. Murray remarks in *Fl. Som.* that a mistake is to be feared, as no other botanist appears to have met with it in the county.

It is not unlikely that this Lettuce was indigenous on St. Vincent's Rocks, which form a suitable locality. Indeed, although the recorded station was quarried away years ago, no one can say that the plant is not still existing on one or more of the ledges that overlook the Gorge. Or can it, together with the other herbs, medicinal and culinary, that abound upon the rocks, trace its descent from the herb-garden of the legendary anchorite whose hermitage was in the cave called "Giant's Hole"?

### 580. *L. muralis* Fresen. *Ivy-leaved Wall Lettuce.*

Native; on rocky banks and old walls; frequent.

July and August.

**G.** St. Vincent's Rocks and the bank of Avon under the Downs. Old walls about Clifton, Redland, Westbury, and Henbury, in many places. Frenchay. Stoke Gifford. Almondsbury. Alveston. Tytherington.

**S.** Rocks and walls about Leigh Woods and the riverside below Bristol. Abbotsleigh. Failand. Belmont Hill and Long Ashton; *Miss Roper*. Stanton Drew and Featherbed Lane; Chew Magna; Stowey; *D. Fry*. Walls at Portbury, Clapton, and Portishead. Yatton. Clevedon. Worle; *St Brody*. Churchill and Cheddar; Holcombe; Stoke Lane; Vallis; *Fl. Som.* Emborrow; Crocombe and Dinder near Wells; *Miss Livett*. Not uncommon on rocks and old walls; *Fl. Bathon*.

*Chondrilla muralis* and *Prenanthes muralis* are old names for this plant.

## TARAXACUM *Juss.*

### 581. *T. officinale* Weber. *Common Dandelion.*

Native; in waste and cultivated ground. Abundant everywhere in open situations.

March to October.

#### VAR. *β. T. lævigatum* DC.

With outer phyllaries ovate, inner ones horned or gibbous at the tip, and pale

brown or reddish-yellow fruit, is not uncommon on walls. St. Philip's Marsh and near Shepton Mallet; *Miss Roper*. Well marked and plentiful in the neighbourhood of Bath; *S. T. Dunn*.

VAR.  $\gamma$  **T. erythrospermum** DC.

Of dwarf habit with very deeply pinnatifid leaves; the outer phyllaries lanceolate, adpressed or patent, inner ones gibbous or appendaged at the tip; and bright red or reddish-brown fruit. It is readily found when looked for in dry, barren spots.

**G.** St. Vincent's Rocks. Brandon Hill, on a wall behind Berkeley Square; *D. Fry*. Kingsweston. Henbury. Frampton Cotterell.

**S.** Bourton Batch. Stanton Drew; *D. Fry*. Cheddar. Thin sandy turf in Kewstoke Bay. Weston-super-Mare and Brean Down; *Mrs. Gregory*. Sand dunes at Brean and Berrow. Steep Holm. On rocks in Asham Wood; *Miss Livett*.

VAR.  $\delta$  **T. udum** Jord.

**S.** Crook's Peak; Brean Down; Burnham; Monckton Farleigh; *Rev. E. S. Marshall*.

The rather strongly marked *T. palustre* DC. has not come under notice, but should be found in bogs and damp places. Its leaves are more entire—sinuate-dentate—or if runcinate the lobes are broadly triangular; the outer phyllaries ovate-acuminate, adpressed; and the achenes olive or pale yellow.

## SONCHUS Linn.

**582. S. oleraceus** L. *Common Sow-thistle.*

Native; in cultivated land and waste places; very common.

June to October.

**583. S. asper** Hill. *Rough Sow-thistle.*

Native; as common as the last and general throughout the district.

June to October.

**584. S. arvensis** L. *Corn Sow-thistle.*

Native; in cornfields and damp waste ground; common. Its showy flowers and tall stature make this one of our handsomest *Compositæ*.

August and September.

[**S. palustris** L. Error. Bank of Avon at Crew's Hole, and Conham; *Dr. Stephens* in *Sweet, Fl.* p. 44. Reported to me also once or twice from the same locality; but there is no doubt that a luxuriant form of *S. arvensis* which occurs on ditch-banks has been mistaken for this species. "Dr. H. O. Stephens informed me he had mistaken some other plant for *Sonchus palustris*; consequently it must be expunged from the Bristol Flora."—*Mr. T. B. Flower*, Feb. 1883.]

## CREPIS Linn.

**585. C. taraxacifolia** Thuillier. *Barkhausia* Moench. *Small Rough Hawk's-beard.*

Colonist; among crops and on banks and waste ground; formerly rare, but of late it has obtained year by year a firmer foothold in the district. Additional stations are being constantly observed.

May and June.



**G.** Pastures on Henbury Hill facing Westbury, 1901. In a cultivated field at Filton, 1882. Still there in 1907. Large pasture between Filton Station and Ashley Hill, 1905. By the new road from Stoke Gifford to Filton. Kingswood, 1881; *Dr. Hassé*. By the old tramway below Bitton, 1905. Roadside at Pilning, 1897. In several places near Winterbourne Station, since that line was constructed. Pastures west of Winterbourne Church towards Northwoods. Fields near Alveston Old Church, in profusion, 1911. On the Badminton Railway near Chipping Sodbury; *G. C. Druce*. Fields by Yate Rocks; *Miss Roper*.

**S.** Pastures between Knowle and Whitechurch. Plentiful in a field N.E. of Queen Charlton, 1905. Other pastures on high ground at Charlton Field are full of this plant, and it occurs also by roadsides towards Publow. In a grass crop near Saltford, 1901 and subsequently; and as a garden weed at my residence, 1905; *D. Fry*. In mowing grass by Markham Bottom, south of Haberfield Bridge, 1897. Small roadside quarry beyond Haberfield Bridge, abundant since 1901; and in the fields hard by on both sides of the way. Grassy roadside beyond the Failand Inn. Pastures and hedgebanks between Portishead and Weston-in-Gordano, 1902. Dial Hill, Clevedon, 1880; *W. E. Green*. Abundant there in 1899. Reported also from several spots about Clevedon by *Mrs. Lainson*, *Miss Livett*, and *D. Fry*. Roadside near the Town Quarry, Weston-super-Mare; *Mrs. Gregory*. Several plants in a small field between Cheddar and Axbridge, 1883; *Fl. Som.* Roadside between Lansdown and Bath, rather plentiful; *Rev. W. M. Rogers* in *Fl. Som.* Pastures between Combe Down and Combe Hay; in the tulip-fields by the old coal canal; and in those under Duncorn Hill. Hampton Down, Bath; *C. Bucknall*.

*Crepis taraxacifolia* is considered to be native in Britain only on the chalk of the south-eastern counties, where it seems to have been first noticed in 1713. Since that period the original range has gradually widened, the extension being mainly to the south and west. The Midlands were reached in quite recent times, but having arrived, the plant is now reported to be fast spreading. In the North it remains for the present rare and fugitive. The acceleration of its progress during the last few decades must be attributed to increased facilities for introduction, due to the modern ease of transit that effects a much more rapid dispersal of goods, corn, and forage. In Gloucestershire and Somerset the distribution shows that its march has followed railway traffic, and has had little or no support from docks and shipping. The extraordinary spread of the species as a weed of cultivation is hardly paralleled even by the extension of *Veronica Tournefortii*. Although its presence in the neighbourhood of Bristol was not perceived before 1880 we may expect that in the near future it will have become too common to deserve enumeration of localities. But just now this detailed record of its invasion may have some interest.

[*C. foetida* L. *Stinking Hawk's-head*.

A casual alien. Very rare, and probably lost from the only stations whence it has been recorded. "In England, though often styled a native in the south-eastern counties, it is usually recorded expressly from artificial habitats."—*Dunn's Alien Flora*.]

**S.** Bathampton, July, 1867; *C. E. Broome* in *Herb. Jenyns*. Railway banks, Bathampton, June, 1870; *Herb. Flower*. Mr. Flower sent specimens from this locality to the Bot. Exch. Club in the same year. In a disused lias quarry near Twerton, 1897; *S. T. Dunn*.]

**586. *C. virens* L.** *C. tectorum* Sm. *Smooth Hawk's-beard.*

Native; in waste ground, grass-fields, and by roadsides; very common.

June to September.

[*C. setosa* Hall. *Bristly Hawk's-beard.*

A casual alien, introduced with imported seeds. Very rare and fugitive.

G. In fields at Westbury-on-Trym, 1879; W. E. Green.]

[*C. nicæensis* Balbis. *Hawk's-beard of Nice.*

A casual alien in a field of fodder grass. Very rare.

S. Observed by Mr. Murray in a field between Cheddar and Axbridge, with *C. biennis*, 1883; *Fl. Som.* p. 207. Not seen since.]

**587. *C. biennis* L.** *Large Rough Hawk's-beard.*

Colonist; in fields of sown grasses, and on roadsides and railway banks. Rare, but of increasing frequency and is likely to spread. June and July.

G. Roadside south of Thornbury! 1906; *C. Bucknall*. Railway banks of the Badminton line near Chipping Sodbury, 1909; *G. C. Druce*.

S. Railway embankment near Nailsea! 1900; *Miss Roper*. By the railway near Winscombe; *Mrs. Gregory*. "Field on Mendip below Cheddar Wood in 1883 and 1891."—*Fl. Som.* I saw a good quantity there in 1893. By 1899 the plant had greatly increased. On May 31, three grass-fields in the angle formed by the road to Shipham through the "Perch" with that leading from Cheddar to Axbridge (the *Fl. Som.* locality) were full of it, and some had strayed on to the outer hedgebank and roadside. These fields were ploughed up for strawberry culture in 1903. Plentiful in a field between Fairleigh and The Lodge, Weston-super-Mare, 1893-6; *Mrs. Gregory*.

**HIERACIUM Linn.****588. *H. Pilosella* L.** *Mouse-ear Hawkweed.*

Native; on dry short turf, heaths, and sunny banks; widespread and abundant. The commonest species of the genus. May to July.

VAR. *nigrescens* Fries.

S. Cheddar Gorge; *E. S. Marshall* in *Journ. Bot.* 1907, p. 223. The plant observed on Steep Holm by Mr. Murray and myself in 1891 should perhaps be placed here. This is a conspicuous variety, having the upper part of the scape and the phyllaries nearly black with glandular hairs.

VAR. *concinatum* F. J. Hanbury.

A dwarf plant, without long hairs but having scape and involucre densely floccose-setose, and the outer ligules striped with deep crimson. Very well marked in Cheddar Gorge, where it was pointed out to me by the Rev. E. S. Marshall. And he reports it also from Brean Down. Rocks above Draycott; *R. V. Sherring*, fide *E. F. Linton*.

**589. *H. aurantiacum* L.** *Grim the Collier. Orange Hawkweed.*

Alien; persistently established on old walls and quarried rock near gardens. Rather rare. June to August.



**G.** Walls about Richmond Hill, Clifton. Behind the Salutation Inn at Henbury. Walls at Kingswood, July, 1868; *Herb. St. Brody*. Old walls between Yate and Chipping Sodbury; *Misses Cundall*.

**S.** Yatton. Clevedon. Milton, near Weston-super-Mare. Quarry at Hallatrow, and by the road to Temple Cloud. A single plant in Compton Martin Wood, 1910; *Dr. Gough*.

A pretty garden plant that grows strongly on a rockery, with flowers of a dark orange tint. Until recently it retained the old name given by Gerard and others in allusion to the smutty effect of the black glandular hairs which invest the pedicel and involucre.

**[H. amplexicaule L.**

Alien; established on a wall. A native of Northern and Central Spain and the Pyrenees, where I have seen it in abundance at a high elevation. It has long grown upon a garden wall on Richmond Hill, Clifton; and was noted thence many years ago by Mr. F. J. Hanbury in his unfinished, fragmentary *Monograph*. The plant continued in good order at Richmond Hill until July, 1910, when it flowered handsomely along some yards of the roadside wall. But this display, so attractive to many of us, must have seemed offensive to someone, for within a few days very nearly the whole of it was ruthlessly torn away.]

**590. H. lima F. J. Hanbury.**

Native; on limestone rocks and slopes, very rare.

May to July.

**S.** Cliffs and slopes of Cheddar Gorge.

A very robust, distinct-looking species, for which no other locality is known. Together with several other Cheddar hawkweeds that are now differentiated and defined, this was formerly merged in "*murorum*" and "*cæsius*" and stood under those names in our older herbaria. One of the earliest hawkweeds in flower. The specific name—*lima* a file, in allusion to the rough leaf-surface—was suggested by Mr. Cosmo Melvill.

**591. H. Schmidtii Tausch.**

Native; on cliffs and dry rocky slopes, very rare.

June and July.

**S.** Rocks and slopes of Cheddar Gorge.

Described in *Fl. Som.* as being abundant about the Cheddar Cliffs at that date. But I learnt shortly afterwards from Messrs. Hanbury and Linton that the Cheddar plant (or most of it) differed in several respects from type *Schmidtii*, and was considered by Dr. Elfstrand to constitute a distinct species or variety not matched elsewhere. This subsequently proved to be identical with the *H. Cyathis*, recently described by the Rev. Aug. Ley from Breconshire specimens. It remains uncertain, however, if all our *Schmidtii* should be transferred to *Cyathis*, or only a part of it. Writing in 1905, Mr. Ley said he had satisfied himself that true *H. Schmidtii* did exist at Cheddar, in fair abundance, but was not nearly so plentiful there as *H. Cyathis*. Since then grave doubts as to its actual presence have been expressed, and Mr. Marshall (*Journ. Bot.* 1909, p. 259) assumes that the Cheddar station must be expunged from Somerset lists. But I prefer to let it keep its place for awhile, at any rate. I have to own that all my specimens have turned out to be *Cyathis*; still, if the other species were at Cheddar in 1905 it should surely be there now. It happens, unfortunately, that on account of the free and frequent gathering that has

accompanied the discussion of questions concerning the standing of these rare plants, since their old grouping went into the melting-pot, the quantity at Cheddar has sensibly diminished. The refiner, worse luck, does not seem even now to have finished his task.

VAR. **devoniense** *F. J. Hanbury.*

**S.** Cheddar Gorge; *Rev. Aug. Ley.* Reported to me by Mr. Ley in 1910.

**592. H. Cyathis** *Ley.*

Native; at Cheddar only, as explained under *H. Schmidtii*. June and July.

First noticed by Mr. Ley on limestone rocks in Breconshire, in 1894; and described by him as a new variety in 1898. There are no other British stations.

**593. H. stenolepis** *Lindb.*

Native; on limestone rocks and slopes; very rare. June and July.

**S.** Cheddar Gorge, now scarce. Rocks south of the Long Wood on Mendip, over a small area.

**594. H. pellucidum** *Laestad* (as var. under *H. murorum* in *Journ. Bot.* 1899, p. 418).

Native; on oolitic hills, local. June and July.

**G.** Discovered near Wotton-under-Edge in 1897 by Mr. C. Bucknall. In 1898 it was observed by Mr. David Fry and myself to grow plentifully about wood-borders on the hills overlooking Dursley.

Dr. H. O. Stephens sent specimens of "*H. murorum*" from Dursley in 1846 to the Botanical Society of London.

The old *murorum* aggregate has long been split into many "species": this *pellucidum* being one among several dozens. And the end of such differentiation is not yet. Now (in 1910) I have a Wotton specimen labelled on authority *H. serratifrons* Almq. var. *torticeps* Dahlst.

**595. H. rubiginosum** *F. J. Hanbury.*

Native; on limestone; very rare. June and July.

**S.** Cheddar Gorge, in one spot only.

A very distinct and interesting plant, discovered by the Rev. Augustin Ley in 1905. Mr. Ley told me he had noticed in Mr. Hanbury's herbarium, and in that at South Kensington, sheets of a Hawkweed from Cheddar labelled "*H. flocculosum*;" and was thus set hunting for a corresponding plant. That which he found seemed at first to be different from the specimen in the British Museum, and so Mr. Ley searched again at Cheddar in hope of getting yet another good Hawkweed from the Gorge; but nothing could be found resembling *flocculosum*. I now see it stated (*Journ. Bot.* 1909, p. 259) that the British Museum specimen was misnamed, and that it is really identical with Mr. Ley's *rubiginosum*.

The late Rev. W. R. Linton, author of *The British Hieracia*, wrote:—"This



Cheddar hawkweed is just *rubiginosum* of West Yorks; exactly the same save for slight differences in head-clothing and pilosity, and that glands are somewhat more in evidence."

The next nearest localities for the plant are in the counties of Brecon, Carnarvon, and Derby.

**596. *H. vulgatum* Fries. Wood Hawkweed.**

Native; on rocks and hillsides, rare or possibly non-existent as a type.

June and July.

**G.** On Breakheart Hill and elsewhere near Dursley.

**S.** What was stated on authority to be the true plant grew for some years on a retaining wall of the G.W.R. at Newton St. Loe; but Mr. D. Fry told me that it was destroyed by repairs and repointing in 1906. Cheddar Gorge; and Rowberrow Bottom on Mendip; *Fl. Som.* Mr. Murray observed that these Mendip plants presented marked differences from the ordinary Somerset form (now separated from *vulgatum*); and M. Arvet-Touvet, a French writer on Hieracium, said of a Cheddar specimen that it did not match with the Clifton plant and he held it to be a form of *vulgatum*. The Rev. E. S. Marshall, however (*Journ. Bot.* 1907, p. 223), recognizes no difference.

It will be seen that *H. vulgatum*, formerly classed in the "common" group, has now become distinctly rare. This results from critical analyses to which the whole genus has been latterly subjected; and the consequent separation of numerous slightly differing forms which had been previously lumped together. In this instance so much has been taken away from the aggregate that little or nothing remains among our local plants to represent the type. The bulk has gone to swell the entity placed before us in transitory view under the successive names *orarium*; *sciaphilum*; and *transiens*. In a sense the last name is the most apt; it is expressive of the present state of Hawkweed nomenclature.

**597. *H. maculatum* Sm. Spotted Hawkweed.**

Alien; or at best a doubtful native. Well established on rocks, walls, and waste ground in many places.

June and July.

**G.** Formerly on St. Vincent's Rocks; and on a wall leading to Bellevue, Clifton; *Miss Atwood* in *Suete, Fl.* Specimens from both localities are stated to have been confirmed by Dr. Boswell Syme. House's Combe Nurseries, as a spontaneous weed, 1904. At Frenchay, in a quarry; *Miss Roper*.

**S.** Several roots in the Station-yard, Portishead, 1904. Plentiful on a wall at Corston; *D. Fry*. By the railway near Clutton. Abundant on colliery heaps at Camerton, 1893 and subsequently. Quarry by the roadside near Hallatrow, 1898. In a ravine near old iron-works between Mells and Great Elm. On limestone rubble high up in Cheddar Gorge, looking thoroughly native but only three plants; possibly seeded down from higher cliffs, June, 1909; *Rev. Aug. Ley*. Mr. Ley could see nothing of it in the Cheddar gardens. Warleigh Ferry, Combe Down, and Claverton Down; *D. Fry*. On walls and quarried ground about Prior Park, Bath, 1892. Mr. Claridge Druce saw it

there in 1898 and sent some to an Exchange Club. He thought it completely naturalized. There are specimens from Bath of much earlier date in the Borrer Herbarium at Kew, showing that the plant has been established there for a considerable period.

*H. maculatum* is considered to be really indigenous at some localities in Yorkshire and Snowdonia.

### 598. *H. sciaphilum* Uechtr.

Native; on limestone, less frequent than the variety. June and July.

Mr. Ley advised me that, in his judgment, the plant in Cheddar Gorge is type and not his variety. This is possibly so at a few other stations given below under *transiens*.

VAR. *transiens* Ley in *Journ. Bot.* 1909, p. 49.

On rocks, banks, and walls of both limestone and sandstone; frequent.

**G.** In plenty on St. Vincent's Rocks, and about the railway along the riverside adjacent, as well as on the conglomerate by the Bridge Valley Road. On a wall at Sneyd Park, 1891. Old walls on Kingsdown, Bristol (Henrietta Street, Spring Hill etc.). On a small colliery heap between Kingswood and Hanham, 1885-8; now destroyed. Glen Frome. Walls by the roadside at Cleeve near Frenchay. Sandstone rock at Leap Bridge and walls about Downend. In profusion on railway banks between Staple Hill and Mangotsfield Stations. Rodway Hill.

**S.** Open spots in Leigh Woods, but the chief stations have been enclosed. Walls on Failand Hill. Hedgebanks near the bottom of Naish Hill, Clapton-in-Gordano. Walls by the Clapton Road; Norton's Wood, Clevedon; and Walton-in-Gordano; *D. Fry*. Roadside rock on Churchill Batch, and in "The Perch" defile south of Shipham. Unquarried crags on the north face of Shuteshelve Hill. On walls in Cheddar village and in the Gorge (if not better under type or *H. vulgatum*).

As intimated above, the whole of these plants used to be placed under *H. vulgatum*. When first split off they went to *H. orarium* Lindeb., at least roots from St. Vincent's Rocks "proved" to be that on cultivation (*Journ. Bot.* 1891, p. 273). After a good deal of further study they were transferred to *H. sciaphilum* "near, but not quite it." And now we have the varietal name here given. All the examples I have collected in the district are judged to be the same thing (*transiens*), but some localities, e.g. those of Mr. Fry near Clevedon, have not been tested since Mr. Ley's variety was published.

The description of *transiens* gives a good idea of the extreme fineness with which hawkweed characters are drawn in these days. It runs as follows:—"Stem less tall than the type; leaves fewer, broader; stem-leaves 3-5; heads truncate at base; peduncles less bracteolate; phyllaries with fewer hairs; ligules usually naked or only slightly setose in bud."

### 599. *H. diaphanoides* Lindeb.

Native; on rock. Very rare, closely allied to the last species. June and July.



**G.** The Avon Gorge, Clifton; *teste* Rev. W. R. Linton. Rocky bank at Mangotsfield Station; Rev. E. F. Linton in *Journ. Bot.* 1891, p. 272.

Neither Mr. Bucknall nor I can now find the plant at these localities. Specimens gathered by me on Rodway Hill, Mangotsfield, in 1892, were reported on as "poor and insufficient; probably only a starved *vulgatum* form." Mr. Hanbury went on to say:—"We appear to have in this country intermediates which form a connecting link between *H. vulgatum* and *H. diaphanoides*." Judging from Exchange Club Reports and from my experience as Distributor, there is general difficulty in recognizing this species; the main hindrance being that few, if any, British plants correspond to the Scandinavian type. Many specimens sent out under the name prove to be weak *sciaphilum*.

*H. dædalolepium* Dahlst. is another critical form very delicately balanced in this group. I mention it because it has been doubtfully reported from Clifton rocks. One of our ablest botanists not long ago suggested that as it was often with difficulty distinguished from *H. diaphanoides* the two should be associated together.

[**H. gothicum** Fries. St. Vincent's Rocks, G.; and Leigh Woods, S. Named by *Bot. Soc. Lond.*—*H. O. Stephens* in *Suete*, *Fl.* p. 45. These records refer doubtless to one or other of the preceding plants, which were arranged very differently at that period. For the Ebbor rocks plant (*Fl. Som.* p. 209) see *H. rigidum* var. *scabrescens*.]

#### 600. *H. tridentatum* Fries. *Three-toothed Hawkweed*.

Native; on banks and furzy commons; rare.

July and August.

**G.** Redland; and Crew's Hole (as *H. rigidum*); *Herb. Stephens*. Sparingly among furze on Ivory Hill near Winterbourne. Yate Common. Valley below Wyck Rocks.

**S.** Quarry by roadside near Hallatrow, 1898; *D. Fry*. Callow Rocks near Sidcot. Cliffs of ravine above Ebbor Gorge; *J. G. Baker*. Rather common about Nettlebridge and Stoke Lane; *Fl. Som.* Valley between Mells and Great Elm; *Rev. S. Laing*.

"This plant cannot go to *H. rigidum*. It is intermediate, as Fries observes, between *H. vulgatum* and *H. gothicum*; and connects also with *H. rigidum*, from which it is distinguished by the basal leaves being frequently rosulate, the longer and more irregular tooting of the stem-leaves, the smaller and more pilose heads."—*Linton. The British Hieracia*.

#### 601. *H. rigidum* Hartm. var. *scabrescens* Dahlst.

Native; on limestone rock; very rare.

June and July.

**S.** Ebbor Rocks, in the upper part of the ravine. Callow Rocks near Sidcot. Sparingly on Churchill Batch, 1900; *C. Bucknall*.

First gathered by the late Prof. Babington at Ebbor in 1851, as *H. gothicum* (*Fl. Som.* p. 209). The specimens, now in Mr. F. J. Hanbury's herbarium, were poor and scarcely sufficient for satisfactory determination. In July, 1896, Mr. D. Fry and I gathered at Ebbor a Hawkweed which we believed to be Prof. Babington's plant, and this fresh material was considered by Messrs. Hanbury and Marshall to represent *H. rigidum* var. *pullatum* (*Journ. Bot.* 1897,

p. 124). In 1902, the name *pullatum* having been dropped, I was advised to call this plant "a more glandular form of *scabrescens*," in deference to Dr. Elfstrand's opinion on some corresponding Welsh gatherings.

The var. *trichocaulon* Dahlst. has been reported from Mendip by Mr. R. V. Sherring.

A quotation from the Rev. W. R. Linton's introduction to this section of the genus (*The British Hieracia*, p. 76) will throw some additional light on the intricate relations that obtain between these plants—*gothicum*, *rigidum* etc.—“The passage from the phyllopodous to the aphyllopodous forms is bridged by intermediates, which connect both the *Oreadea* and the *Eu-vulgata* with the *Rigida*. Also, owing to the great mobility or want of fixity in so many members of the genus, or in abnormal circumstances or special situations, cases occur of plants departing from their family type and conforming to some other. Both phyllopodous plants are found growing aphyllopodously, and *vice versâ*. Thus *rigidum* varieties occasionally produce rosulate or closely approximate basal leaves in dry and exposed situations; and individual plants of *gothicum* simulate *rigidum*. . . . Dahlstedt placed *gothicum* in the glandular subsection of the *Eu-vulgata*. But, besides being pseudophyllopodous, our British *gothicum* is not markedly glandular-headed, and seems more akin to *H. rigidum*.”

### 602. *H. boreale* Fries. *Broad-leaved Hawkweed*.

Native; on railway banks, rocks and old walls; rather frequent on sandstone and grit. August and September.

**G.** By the railway under Sneyd Park. On several old walls at Stoke Bishop. Stapleton; *Herb. Stephens*. Glen Frome; Crew's Hole and Hanham; *Miss Atwood in Swete, Fl.* Crew's Hole; *H. O. Stephens in Herb. Clark*. Rodway Hill, scattered single plants mostly; *C. Bucknall*. On Ivory Hill near Frampton Cotterell, and at the side of the Yate road a little to the northward. In the Boyd valley below Wyck.

**S.** Plentiful about the Portishead Railway under Leigh Woods, especially where the sandstone appears. In profusion on one side of the G.W.R. cutting and about the Pennant quarries between St. Anne's and Keynsham Hams; *D. Fry*. Nettlebridge, 1886; *Miss Livett*. Houndstreet; *D. Fry*. Frome East Woodlands; *H. F. Parsons in Fl. Som.*

### 603. *H. umbellatum* L. *Narrow-leaved Hawkweed*.

Native; on banks, commons, and the peat moors; rare.

August and September.

**G.** Hanham Woods, 1851; *Herb. Jenyns*. By old cart tracks and on Pennant rubble in several spots near the Avon about half a mile below Hanham Ferry, in fair but variable quantity. Yate Common, sparingly in 1882, but much more plentiful in some after years, on the western side and by the railway at Yate Station. Wyck Rocks; *J. G. Baker*.

**S.** Roadside near Stoke Lane, Edford; *Fl. Som.* Drier parts of the peat moors at Catcott Burtle, Edington and Shapwick Drovers, etc.



## CAMPANULACEÆ.

[*Jasione montana* L. *Sheep's Scabious*.

The late Mrs. Lainson, an enthusiastic botanist, published some local plant lists in the *Clevedon Mercury* (April 29 and Dec. 21, 1876) under the pseudonym of "Lily Grey." Among many uncommon species that are known to us she mentioned *Jasione montana*. I made this lady's acquaintance in later years, but unluckily her Clevedon lists did not come into my hands until after her death. Mrs. Lainson's collection is in the possession of Bristol University, but no local specimen of this plant can be found in it. Nor have I met with any other mention of it as a Clevedon or Bristol species. *Jasione* is common in West Somerset, and there would be nothing surprising in its occurrence in the northern division of the county.]

## CAMPANULA Linn.

604. *C. glomerata* L. *Clustered Bell-flower*.

Native; in dry hilly pastures, frequent on the oolitic tracts, rare on limestone, and nowhere within at least six miles of the city. July and August.

**G.** Green sward at the top of Wyck Rocks, where Dr. H. O. Stephens noted some white-flowered plants. Dyrham Camp; *Miss Roper*. It grows here and there along the Sodbury range, northward from Lansdown by Hawkesbury and Hillsley to the hills above Dursley and Wotton-under-Edge; often luxuriant and in fair quantity.

**S.** Newton St. Loe, 1911; *G. Morse*. Upland pastures on Mendip above Cheddar. Rather plentiful on the old mining-ground between Winterhead and Shipham. Near Star on Mendip; and in plenty between Cranmore Station and the Mendip quarries; *R. V. Sherring*. Barrow Hill near Great Elm; *Fl. Som.* Near Wells; *Miss Livett*. Slopes above the canal at Midford. Charlcombe; *Mrs. Lainson*. Lansdown; on the brow of the hill going up from Kelston, and also on the slopes above North Stoke, where it is more abundant and luxuriant; *D. Fry*. Sparingly by the lane leading from Lansdown to Langridge. Near South Stoke; *A. E. Burr*. Frequent on hill-sides near Bath; *Fl. Bathon.* and *S. T. Dunn*.

605. *C. latifolia* L. *Giant Bell-Flower*.

Native; on the banks of the river Frome between Stapleton and Frenchay. Very rare, and now probably extinct in that part of Glen Frome which is open to the public. July and August.

**G.** Frenchay, 1828; *S. Rootsey*. Glen Frome, 1843; *Herb. Stephens*. Stapleton, 1851; *Herb. Cundall*. Mr. Hewett Watson had Bristol vouchers from both Miss Worsley and Dr. Thwaites; one for the *New Bot. G.* and the other for *Topogr. Bot.* In 1878 I found a small quantity in stony woodland on the left bank of the Frome in two places a quarter of a mile apart; one in private grounds and the other below Fishponds Asylum. At the latter spot there were three plants close to the water. One of these survived until 1904, but by that time paths had been trampled along the bank laying bare the rock at the water's edge, and only a few leaves were showing themselves. In 1907 Miss Roper and Mr. F. Samson reported two small groups on the right bank within the enclosures of Oldbury Court.

In *Science Gossip*, 1885, p. 194, Mr. G. H. Bryan records *Campanula latifolia* with *C. Trachelium* from near Shepton Mallet, S.; and Mr. J. H. Reed tells me (1910) that he believes the plant has grown there towards West Compton. No confirmation by specimen has come to hand. Miss Roper has very kindly made a special search in that neighbourhood, but fruitlessly. She reports having met with *C. Trachelium* in unusual luxuriance, and as the leaves of that species vary so much in size and shape she thinks it likely that some big examples of it have been mistaken for *C. latifolia*. There is no mention of the Giant Bell-flower in *Fl. Somerset*, save as a casual near Dulverton. And it must have been a casual that Mr. John Storrie saw on Steep Holm in 1883.

This should be considered a northern species, although it has been found (quite rarely) in Kent and Surrey. In Herefordshire it is rather plentiful on the rocky banks of the Wye, as described by Prof. Babington in 1844 and in *Fl. Heref.*, and it occurs in Glamorganshire; but in S.W. Britain the plant seems to have reached its southern limit at Bristol.

**606. *C. Trachelium* L. Nettle-leaved Bell-flower.**

Native; in hedges, thickets, and open woodland; locally common on limestone and oolite, very rare on the pennant sandstone. July to September.

**G.** Blaize Castle Woods; *Herb. Powell*; 1839. Still there in 1910. By the Frome near Frenchay; *H. J. Wadlow*. Damery Bridge, 1886; *G. C. Druce*. Horton. Hawkesbury. Stinchcombe Hill. Woodland above Wotton-under-Edge.

**S.** Bank of Avon under Leigh Woods; *Dr. Rogers* in *Swete, Fl.* p. 51. Still there on rock above the railway. One plant in Beggar's Bush Lane, 1906; *Miss Roper*. Hedges about Failand and Flax Bourton. Bourton Combe. With white flowers in Portbury Woods. Woods along the ridge above Weston-in-Gordano. Tickenham Hill and Limeridge Wood. With pure white flowers on Cadbury Camp; *A. E. G. Way*. Wood borders between Yatton and Congresbury, where Mr. D. Fry found a white-flowered state. Loxton, in abundance. Burrington and Ubley. East Harptree Combe; *Miss Roper*. Rodney Stoke and Draycott. Hedge by the Bristol road near Sidcot; *W. F. Miller*. Cheddar Cliffs and elsewhere on the rocky slopes of Mendip. Cranmore, and Ham Woods near Croscombe. Stoke Lane, Edford; Wellow; and Asham Woods; *Fl. Som.* Frequent in hedges, etc., about Wells and Shepton Mallet. In the lane leading from Swineford to North Stoke; *Misses Cundall*. Very common in woods and hedges about Bath; *Fl. Bathon*.

[*C. rapunculoides* L. *Creeping Bell-flower*.

Alien; a stray from old flower-gardens, occurring very rarely on waste ground, roadsides, etc., as a mere casual. It is at present unknown in either of the localities given below, and is stated seldom or never to become well established in any uncultivated situation.

**S.** Bank of Avon near St. Anne's Wood; *J. Foster* in *Swete, Fl.* p. 100. Hedge at Sand by Kewstoke, 1879; *T. F. Perkins*.]

**607. *C. rotundifolia* L. Hare-bell.**

Native; in dry elevated pastures, loving a breeze. By no means generally distributed in this district, but rather restricted to the old unmown turf of upland tracts on a shallow rocky soil. July to September.



**G.** Plentiful on the Downs where protected from trampling, and on the ledges of St. Vincent's Rocks. Combe Down near Westbury-on-Trym. Between Downend and Mangotsfield. With white flowers on Rodway Hill. Wyck Rocks. Ivory Hill. Westerleigh. Yate Common. Sodbury Common. On the Sodbury and Hawkesbury range of hills, and on those about Dursley and Wotton-under-Edge. Tortworth, with pure white flowers; *Misses Cundall*.

**S.** Bedminster Down. Brislington; *Swete, Fl.* Beggar's Bush Lane. Upper Failand. Near Ashton Tump and Providence Place. Abundant on a hedgebank between Pensford and Upper Stanton [probably a relic from the heath or common before enclosure]; rare elsewhere in that neighbourhood; *D. Fry*. Barrow Hill. Hutton Combe. Bleadon Hill. Brean Down. Frequent on Mendip about Shipham, Cheddar, etc., where I have seen it flowering on into November in a mild autumn. With white flowers on Dolebury and above Draycott. Common on the hills near Wells; *Fl. Som.* Frequent on the upper part of the hills around Bath; *Fl. Bathon*.

Although the Hare-bell is so generally dispersed throughout Great Britain as to be now vouched for in every one of Watson's vice-counties except the Orkney Islands, its local distribution seems to be singularly uneven. While in some county lists the localities are said to be far too numerous to deserve enumeration, in others these are given in detail with notes explanatory of the conditions that appear to favour the plant's well-being, and in others again (as in S. Devon and E. Cornwall) it is shown to be extremely scarce and to rank with the greater rarities of the district. The causes that govern such variations are doubtless themselves variable.

[**C. persicifolia** *L.* An alien species with us, for which there are merely two records made many years ago.

**S.** On a bank close to a cultivated field adjoining the coppice wood at Hutton; *St. Brody, Fl. Weston*, p. 117. Reported too from a wood-border by Lansdown, Bath; but no specimen has been produced from either locality.

The temporary occurrence of a garden outcast such as this in a few stations might well have been passed over as supplying a too shadowy connection with the Bristol Flora. But the recent discovery by Father Reader of a presumably native habitat for the plant on the Cotswolds between Nailsworth and Dursley, only a little way beyond our northern limit, invests the plant with a decided local interest. For, as mentioned by Mr. G. C. Druce in his review of the position of this *Campanula* as a British species (*Journ. Bot.* 1903, p. 290), the new discovery lies within the area yielding *Stachys alpina* and one or two other remarkable plants that long escaped detection, and where there are still large tracts of woodland comparatively unexplored. It must be owned, therefore, that there is a reasonable chance of finding *C. persicifolia* eventually lower down in West Gloucester, and within the borders of our Bristol Coalfields. There is nothing in the European distribution of the species that renders it unlikely to be indigenous in this country. In fact its absence from Britain as a native plant would be anomalous.]

### 608. *C. patula* *L.* *Spreading Bell-flower.*

Native; in bushy places, very rare.

July to September.

**G.** Wood on the Downend side of Glen Frome; *Swete, Fl.* Oldbury Court Woods; *G. H. K. Thwaites*. Stapleton; *Herb. Stephens*. These records probably refer to the same locality. Mr. T. B. Flower told me that Dr. Thwaites and he used to gather the plant in Glen Frome. There is of course a possibility that it still exists, but I have not met with it, nor have I information more recent than that given.

**S.** East Harptree Combe; *Rutter's Hist. N.W. Som.* (1829). Still there in

good quantity. In a field at East Harptree near the Manor House, with *Vicia Orobus*; *T. B. Flower* loc. 1888. West Harptree; *Herb. Stephens*. Vallis, only once found; *H. F. Parsons*. Wells, one plant by the roadside, 1883; *Fl. Som.* It has been reported from Compton Martin Wood.

### SPECULARIA *Heist.*

**609. *S. hybrida* A.DC.** *Campanula* L. *Legousia* Durande. *Prismatocarpus* Rehb. *Small-flowered Venus' Looking-glass.*

Colonist; in cultivated fields, rather rare.

June to September.

**G.** Lawrence Weston; *Miss Powell* in *Swete, Fl.* Cornfields at Marshfield and Wolley; *Fl. Bathon.* Bitton; *Canon Ellacombe.*

**S.** Keynsham, 1856; *T. B. Flower.* Cultivated fields between Stockwood and Keynsham, at Whitechurch, and near Queen Charlton, very fine and abundant in 1886; *D. Fry.* Frequent in cornfields about Stanton Prior, 1889; *Rev. S. Browne.* Field of green fodder at Wraxall, 1906! *Miss Peck.* Cultivated fields by Clevedon! *Herb. Powell*; *Miss Winter*; *D. Fry*; etc. Hutton near Weston-super-Mare; *St. Brody.* On Lansdown, not far from the Grenville Monument, 1900. Clover fields between Odd Down and Combe Hay, and on Fortnight Farm, 1907. Not uncommon in cornfields near Bath; *Fl. Bathon. Suppl.*

Possibly overlooked and less scarce really than is supposed. It has the same standing as Corn Cockle or Corn Marigold, and is usually found among poor, thin crops on lias and oolite.

At a meeting of our University Botanical Club in July, 1910, there was exhibited by Miss Jacques a specimen of this plant from near Whitechurch in which one of the bracts sprang from a point half-way up the ovary. And I notice that the first plants of *Specularia* observed in Ireland were reported by the discoverer (Mr. Nath. Colgan in *The Irish Naturalist*, 1892) to have "the marked feature of a peculiar pair of bracts placed about the middle of the capsule." None of the authorities consulted, English or Continental, makes reference to this variation. Inferior ovaries are now considered not to have a true carpellary wall, but to be enclosed within a prolongation of the plant's axis; a theory which makes it comparatively easy to understand the peculiarity here described.

[**S. Speculum** A.DC. *Venus' Looking-glass.* Alien from Continental cornfields. Introduced on waste ground with mill-refuse or grain-siftings. Often cultivated in gardens.

**G.** St. Philip's Marsh, abundant on tipped rubbish, 1904 to 1907. Watercress Farm, Baptist Mills, 1911; *I. W. Evans.*

**S.** Portishead Station-yard, several plants in 1907; two in 1909.]

### CERVICINA *Delile.*

**610. *C. hederacea* Druce.** *Wahlenbergia hederacea* Reichb. *Ivy-leaved Bell-flower.*

Native; on some of the southern peat moors; locally plentiful, but not distributed over the whole peat area.

July to September.



**S.** Heathy land and old turf-cuttings eastward from Shapwick Drove. Here, among the coarse sedge tussocks and coverts of dwarf birch, the whole ground in late summer is often tinged by the tiny, delicate blue blossoms of this most graceful little plant.

## ERICACEÆ.

[*Arbutus Unedo* L. *Strawberry-tree*.

This handsome evergreen has been extensively planted for a long period about Clifton, Blaize Castle, Kingsweston, etc., and is occasionally self-sown, so that it has been reported as "naturalized." The older trees in this neighbourhood are far larger than the wild ones about Killarney, which are said never to exceed the height of 8-10 feet.]

## ANDROMEDA Linn.

**611. A. polifolia** L. *Bog-bell. Wild Rosemary.*

Native; on the primitive heathland of the southern peat moors; formerly in some quantity, but now extremely rare. June to September.

**S.** Glastonbury and Burtle turf-moors, near the beginning of the Mendip Hills from Bath; *Bot. Guide* (1805). Peat bogs, Wedmore; *Rutter's Hist. N.W. Som.* (1829). Panborough Moor, between Wedmore and Wells, 1853; *Herb. Lawrence*. Frequent on the drier parts of the moors, 1856; *T. Clark*. "In the peat bog at Shapwick, Somerset, very abundant, 1862;"—*J. W. Chapman in Phytol. N.S.* vol. VI. The Rev. E. S. Marshall saw it in 1905.

I used to find it amongst heath, edging some of the main droves, where the original land-surface had been temporarily preserved; but those spots no longer hold it. Mr. H. S. Thompson told me some years ago that *Andromeda* was then very much scarcer than when he first botanized on the peat. He had found it towards the Glastonbury end of the moors and also on the N.W. side of the railway. "In moderate quantity on dryish peat among ling on the south side of the railway between Shapwick and Ashcott. The bog-bell occurs here on primitive heathland, as a dependent species, half climbing, half scrambling, up the stems of the heather."—*C. E. Moss*, 1902. Dr. Moss remarks that, while in Cheshire *Andromeda* is common on the wet peat of the lowland mosses and occurs more rarely with cotton-grasses on the Pennines, it is absent from that kind of situation on the peat of N. Somerset. Thus, as the portions of Turf Moor that remain in a pristine condition are being continually lessened by the operation of turf-cutting, the primitive plant associations gradually disappear; and not all the members of those original associations find it possible to take a place with the secondary hosts that spring up in the pits left by the turf-cutters.

This species is included in a list of Mendip plants published in *Winscombe Sketches*, but I think in error. It certainly does not grow in any of the upland bogs.

**CALLUNA** *Salisb.***612. C. Erica** *DC. C. vulgaris* *Salisb. Ling. Heather.*

Native; on heaths and commons. Abundant in suitable situations. White-flowered plants are frequent on the Mendip moorland, Yate Common, etc.

June to September.

**ERICA** *Linn.***613. E. Tetralix** *L. Cross-leaved Heath.*

Native; on damp or boggy heaths and commons. Rather rare and local. A diminishing species.

July to September.

**G.** Durdham Down and Stapleton; *Swete, Fl. and T. B. Flower.* Durdham Down, 1868; *Rev. W. W. Spicer.* I do not remember seeing this upon the Downs, and much doubt if it still remains either there or near Stapleton. Yate Common, rather plentiful.

**S.** Leigh Woods; *Swete, Fl. and T. B. Flower;* probably now lost, as it has not been reported of late years. Bogs near Priddy on Mendip. Abundant on Blackdown, where the white-flowered variety is rather frequent. Downhead Common. Quite the dominant heath on the peat moors, where it grows in profusion.

First local record, and for Britain.—“Vulgatior Ericæ folio Myricæ. Pumilla caliculato Unedonis flore . . . Saxosis tamen montibus Angliæ occiduae ad Bristoiam exilior, tota sesquipalmaris, sed densior fruticat.”—*Lobel. Adv.* p. 447 (1570).

**614. E. cinerea** *L. Fine-leaved Heath.*

Native; on heaths and commons. More abundant and more generally distributed in the district than *E. Tetralix*, if we except the peat moors. With white flowers on Durdham Down, July, 1852; *J. H. Cundall.* I have frequently seen it with white flowers on Mendip, especially on that side of Blackdown which overlooks Burrington Combe.

July to September.

Little is now left of the large tracts of heath which existed at one time in the immediate vicinity of Bristol. A constantly increasing population has naturally effected great changes of feature in the vegetation around our city; changes that are not entirely due to extension of enclosures or advance of buildings. The invasion of human feet over all spaces available for sports or recreation is mainly responsible for the diminution or disappearance of ericetal plants from those Downs and Commons that are readily accessible to the people; and Ericaceæ certainly furnish some of the chief sufferers. It is only by examining the steep rocky banks of the river-glens, the verges of quarries, sides of railways, and spots that have been fortunately sheltered by some accident, that we can now form an opinion on the aboriginal flora of some suburban districts. By such means it is possible to trace the large area formerly known as Hanham Heath, and get an idea of the altered condition of the common land between Staple Hill and Bitton. Small patches of ling and



fine-leaved heath are still to be seen here and there along the course of the Midland line to Bath.

[*E. vagans* L. *Cornish Heath*.

Has been planted in several spots on the Court Hill, Clevedon, with *Coloneaster*, *Hypericum hircinum*, etc. The bushes are now of good size and do not appear to dislike the home provided for them, for they flower freely and have spread a little.]

## VACCINIUM Linn.

### 615. *V. Myrtillus* L. *Bilberry*. *Whortleberry*.

Native; on bushy heaths and moorland where there is dry soil over sandstone. Rare and local. April to June.

**G.** Oldbury Court Woods; *G. H. K. Thwaites* in *Swete, Fl.* Hills about Stapleton; *Dr. H. O. Stephens*. These localities would be, of course, in Glen Frome. There is a patch of about 20 sq. yds. on a steep hillside nearly opposite the School bathing-place at Stapleton. The ground here is being steadily broken away by scrambling boys. Half a mile or so higher up the Frome, and also on the left bank, are a few smaller patches on a wooded slope close to the river. Plentiful above the Avon in a wood (now lately cut down) close by the old Spelter Works near Hanham, and on open ground above the wood. Sparingly in a heathy, bushy spot, south of Woodmancote by Dursley, many years ago; *Miss Gingell*.

**S.** Leigh Woods; *G. H. K. Thwaites, l.c.* Leigh Woods, June, 1844; *Herb. Flower*. Failand; on the old red sandstone of Durbin's Batch, not plentiful; *D. Williams*. The Court Hill, Clevedon! *Mrs. Lainson* and *D. Fry*. Still there in small quantity, but the locality is suspicious as the plant does not grow on any of the neighbouring hills, and a former Lady Elton is known to have had many things planted on the Court Hill. Priddy Nine Barrows; Blackdown; and elsewhere on Mendip. Very sparingly in a little valley two miles N.E. of Wells! *Miss Livett*.

The small quantities of bilberry still remaining near the city on the Gloucestershire side are relics of a widespread ericetal vegetation now almost destroyed.

[*V. Vitis-idaea* L. *Red Whortleberry*. *Cowberry*.

A montane species, very unlikely to grow wild in this neighbourhood. It is not certainly known nearer than the Black Mountains of Herefordshire and Monmouth; and there can be little doubt that the following unconfirmed reports arose from some error or inadvertence. The same kind of dubious mention of the plant has been made in other southern districts.

**S.** Leigh Woods; *Bot. Guide* (1805). Leigh Woods near Bristol, and in that neighbourhood; *J. C. Collins, MSS.* *New Bot. G. Suppl.* (1837). Above Weston; *Rutter's Hist.* (1829).]

### 616. *V. Oxycoccus* L. *Oxycoccus quadripetala* Gilib. *Schollera Oxycoccus* Roth. *Cranberry*.

Native; in wet bogs; very rare.

June and July.

**S.** "Prope Glastenbury"; *Huds. Fl. Angl.* ed. ii, p. 165 (1778). Glastonbury and Burtle turf moors; *Sole* in *Collinson's Hist.* (1791). Peat bogs, Wedmore; *Rutter's Hist.* (1829). At Shapwick, in fruit 1836; *J. C. Collins, MSS.* in *New Bot. G. Suppl.* Turf moor, now very rare; *Gupper* in *New B. G.* Turf moor near Burtle, 1841; *Herb. Clark*. I can find no subsequent report

from the moors for many years. Dr. Moss, however, writing (1906) of wet heathland on the peat, is able to mention the cranberry as an "occasional species." He found it with *Andromeda* in wet hollows between Shapwick and Ashcot Stations. And I understand on other authority that it still exists on the Burtle side of the railway.

The late Mr. Theod. Compton of Winscombe stated that with his friend Mr. Hallam he had found *V. Oxycoccus* on Mendip in 1860. Thereafter it appeared to be lost until 1896, when it was rediscovered on Blackdown, nicely in flower on May 30th, by Mr. W. F. Miller; *Journ. Bot.* 1896, p. 319. The quantity found was very small, the plant spreading thinly over a couple of yards or so; but Mr. Miller's hint that it might occur in some other Mendip locality was fortunately taken by Miss Roper, who detected in 1904 a much larger patch in a bog near the Miners' Arms by Priddy, some miles from the original station. Miss Roper's colony was doing well in 1908.

Technically this plant is a small shrub, but with us it is a very lowly, inconspicuous thing that seldom flowers. Its thread-like stems, with tiny leaves trailing among the mossy herbage, are hard to find. I doubt if a more trying task could be set to a short-sighted person than a hunt for them in spongy sphagnous bogs that are difficult to walk upon, and where at every stop and stoop the water rises to one's ankles. Mr. Bucknall and I, in June, 1905, had bearings for the place on Blackdown that brought us within a hundred yards, and then it took nearly two hours to hit the spot.

### PYROLA Linn.

#### 617. *P. minor* L. *Lesser Winter-green.*

Native; in dampish woods; rare.

June and July.

**G.** Westridge Wood, above Wotton-under-Edge! *C. Wall.* Dursley; in the Gravel-pit Wood, and in a wood near the Ridge, where I have seen it in quantity; *Miss Gingell.* Woodmancote, near Dursley; *Herb. Stephens.* Mr. D. Fry and I found plenty on the lower slopes of Folly Wood at Woodmancote in 1898. The plant extended about a mile.

**S.** Leigh Woods; in one of the side glades to the left of the big oak; *G. B. Thompson.* Wood between Abbotsleigh and the Tan-pits under Failand; discovered by Mr. R. Baker in 1883. In June, 1885, Mr. Baker conducted me to the place and showed me the plant. It grew over a larger area than the discoverer had suspected, and as the underwood had been recently cut it could readily be traced quite 100 yards. In succeeding years the quantity diminished as the wood again thickened until none could be seen. It is only after the ground has been cleared by coppicing that the *Pyrola* is likely to be observed.

First record for North Somerset:—*R. Baker* as above.

#### [*P. media* Sw.

I now distrust the evidence on which I accepted this plant in a previous publication; viz. a single specimen in the Stephens Herbarium labelled by Dr. Stephens as found at Woodmancote with the last species. Nothing could be learnt from the specimen itself, it being too badly damaged by insects; and I think it safer to await confirmation even if we do not conclude that



the frequent error of confusing *media* with *minor* may have been made in this instance. As remarked in the *Student's Flora*, and by Dr. Syme, the two are much alike. Dr. Stephens distributed examples of *P. minor* to several herbaria (British Museum; Watson etc.), but not one of *P. media* so far as is known. Nor could Mr. Fry and I find any sign of it during our search at Woodmancote. The latter is essentially a northern plant for which there is no certain record south of Worcestershire, and in that county it appears to be extremely rare.]

### MONOTROPA Linn.

#### 618. *M. Hypopitys* L. *Yellow Bird's-nest.*

Native; in woods and plantations, chiefly of beech and fir; rare.

July and August.

**G.** Damery, by Tortworth; *V. R. Perkins*. Westridge Wood, near Wotton-under-Edge; *Miss Roper*. Stinchcombe; *C. Bucknall*. Folly Wood, Dursley, 1898! *D. Fry*. Sheep-path Wood, N.W. of Dursley; *Miss Gingell*. Woods near Uley, Gloucestershire; *Mr. Baker* in *Withering* (1796).

**S.** Leigh Woods; *Shiercliff's List*, 1789; and there are records for this locality in later botanical works, including Swete's *Fl. Brist.* In 1896 Mr. R. M. Prideaux brought me specimens from beneath lime trees in Leigh Woods, in that part where the *Epipactis* grows. In 1901 I saw 20 or 30 plants under birch and hawthorn close to the Abbotsleigh road, in a spot now built upon. In Brockley Combe, fairly frequent. Wood at Weston-super-Mare, 1888! *Mrs. Gregory*. Bathford; *Herb. Jenyns*; and (*forma glabra*) *Miss Roper*. Under fir trees near Claverton; *Dutton* in *Herb. Watson*. Plentiful under beeches at Claverton, 1888; *A. E. Burr*. Hampton Wood, Bath, in plenty, 1907! *Miss Peck*. Fir plantations on the top of Widcombe Hill; *Dr. Davis* in *Fl. Bathon*.

### AQUIFOLIACEÆ.

#### ILEX Linn.

#### 619. *I. Aquifolium* L. *Holly.*

Native; in woods and hedges. Common and well distributed.

May to July.

A tree with entire leaves throughout grows on Yate Rocks, G. It is the *VAR. laurifolia* Lej.

A number of fine holly hedges have been produced in the district. The most noteworthy of those near at hand is, perhaps, that which extends for miles on the confines of Tyntesfield Park.

## OLEACEÆ.

LIGUSTRUM *Linn.*620. *L. vulgare* L. *Common Privet.*

Native ; in woods and bushy places, and on limestone rocks ; rather common. Very generally planted in hedges, and in coverts as a shelter for game.

June and July.

Clearly indigenous in some of our woods ; on the Mendip hillsides ; and on coast rocks. Noted in an account of the Manor of Norton Beauchamp, about 1625, and by Lightfoot in 1773 to be a predominant shrub on the rocks and cliffs of Steep Holm, and is still there in plenty at the present time.

[*L. japonicum.* *Chinese Privet.*

Some bushes of this handsome eastern shrub occur in Ham Woods near Croscombe, S.; *Miss Roper.*]

[*Syringa vulgaris* L.

The Common Lilac has established itself vigorously in many places. It forms a hedge for some yards at the top of Belmont Hill, and has spread a considerable distance along roadsides on the high ground between Portishead and Walton. Between Barrow Gurney and the water reservoirs there are several hedges where it has taken the place of the common thorn. On the outskirts of old Mendip mining villages tall clumps of Lilac often mark the site of a long-abandoned cottage when other traces of habitation have entirely disappeared.]

FRAXINUS *Linn.*621. *F. excelsior* L. *Ash.*

Native ; in woods and hedges ; very common throughout all the wooded and enclosed tracts.

April.

If Elm heads the list, the Ash must come next among the commonest trees of our hedgerows. There are plenty of natural ash woods among the limestone hills about Bristol. On Mendip many of the woods are truly primitive : relics doubtless of the historic Saxon hunting forest, where in all probability the Ash was always the most abundant tree.

The wreck of a remarkably fine old Ash stands on Kingsweston Down not far from the iron bridge.

## APOCYNACEÆ.

VINCA *Linn.*622. *V. minor* L. *Lesser Periwinkle.*

Alien or Denizen ; but sometimes looking quite like a native. On hedge-banks and lanesides, rarely in woods ; frequent. No doubt usually an outcast from cultivation, which spreads rapidly when once established in a suitable locality.

February to June.



**G.** It covers a wooded bank in Combe Dingle. Blaize Castle Woods. Horfield; *Swete, Fl.* Along a hedge and grassy bank at Ingst for 40 yards; *Miss Roper.* Hedgeside in a lane between Charlton and Filton, near houses.

**S.** Bishport; and Stockwood; *Swete, Fl.* Abundant on both sides of the lane rising over Woollard Hill, with pastures on either side. Portbury, in a wood and on an adjoining hedgebank; *Misses Hill and Peacock.* With double flowers in Portishead Wood; *H. J. Wadlow.* Plentiful under walls by the side of a green lane on Backwell Hill, and also in a plantation at the end of the lane. Brockley Combe. Wood on Tickenham Hill, with the white-flowered variety. Walton-in-Gordano. Pathsides and wood-border, Clevedon. Hedges by Goblin Combe, apparently wild; *Herb. Stephens.* Yatton and Congresbury; *D. Fry.* Abundant about Weston-super-Mare; *St. Brody.* Lane between Litton and Coley; *R. V. Sherring.* In a wood near Wells; *Miss Livett.* Brass Knocker Wood and near Widcombe, Bath; *Fl. Som.*

### 623. *V. major* L. *Greater Periwinkle.*

Alien; a native of Southern Europe. Frequent, but always planted or derived from gardens. Sometimes thoroughly naturalized, but not in the sense of propagation by seed: it spreads by rooting. April and May.

**G.** Henbury Hill. Blaize Castle, with the last. Horfield; *Swete, Fl.* Roadside at Hollywood, above the "Lamb and Flag." Old quarry ground near Westerleigh. Along many yards of a rock face in ancient quarryings on Bury Hill, north of Yate Rocks. Pasture hedge north of Elberton.

**S.** Brislington, at St. Anne's. Hedges at Stockwood; *Herb. Stephens.* Bishport; *Swete, Fl.* A large patch in the hedge of a pasture bounding the lane from Woollard to Compton Dando. Laneside, Easton-in-Gordano. Portbury; in a lane near houses, and in the wood by Charlton House. Yatton. Near Woodspring Priory. In Brass Knocker Wood; *Fl. Bathon.* For some yards along the old coal canal a little north of Dunkerton.

## GENTIANACEÆ.

### BLACKSTONIA *Huds.*

#### 624. *B. perfoliata* *Huds.* *Chlora* L. *Perfoliate Yellow-wort.*

Native; on hilly pastures, dry sunny banks, and among sand-hills near the coast. A constant associate of the Bee Orchis. Very general on limestone and on many of the oolitic hills. June to September.

**G.** St. Vincent's Rocks, and rocky slopes along the Avon as far as Sneyd Park. "By the Footway going to the new Well-House by the River Side."—*Banks and Lightfoot, 1773.* This plant was remarked in the Avon Gorge so far back as 1570 or earlier (see below). Combe Down and Henbury Hill. Blaize Castle Woods. Rather sparingly among brushwood on the high

pennant banks between Conham and Hanham Weir. Almondsbury Hill. Wyck Rocks. Yate Rocks. Tytherington Hill. Abundant in open ground on the hill-tops above Wotton-under-Edge and Dursley.

**S.** Open spaces in Leigh Woods and by the riverside railway below the wood. Failand; in rough pastures with Bee Orchis, at one time abundant; now greatly diminished by the coming of golf. And on a bit of unenclosed common by the roadside east of the Failand Inn. Wraxall Hill. Ursleigh Hill, near Pensford. Norton Malreward. Walton-in-Gordano, and downs by the Channel towards Portishead. Tickenham Hill. On the hills about Clevedon. Hilly ground above Congresbury; *D. Fry*. On Mendip, in several spots. Worle Hill. Weston Hill; *St. Brody*. Uphill. Brean Down. Sandhills on the coast at Brean, Berrow and Burnham. Great Elm. Mells; *Fl. Som.* Yarley Hill and Twine Hill, near Wells; *Miss Livett*. Lansdown. Dry pastures, not abundant; *Fl. Bathon*.

First record for Britain:—"Centaureum luteum . . . Angliæ locis . . . collibus urbi Bristoiæ eminentibus inter segetes itidem."—*Lobel. Adv.* p. 173 (1570).

### ERYTHRÆA Necker.

**625. E. ramosissima Pers.** *E. pulchella* Fries. *Slender* or *Dwarf Centaury*.

Native; on limestone warrens, and on sandy ground by the Bristol Channel; local, and by no means so plentiful as formerly. A diminishing species in the district. July to September.

**S.** In a stony warren above the Rectory Wood, and on the West Hill, Wraxall. Cadbury Hill and Walton-in-Gordano; *Miss Livett*. In many places between Weston-super-Mare and Burnham. At one time exceptionally luxuriant and abundant in the big dune marsh at Berrow. Leigh Woods; *J. Poole, MSS.* in *New Bot. G. Suppl.* (1837). I know nothing of the plant in that locality, though it might well occur on some of the open ground. Sparingly on Tor Hill, Wells, 1883; *E. S. Marshall*.

**626. E. Centaurium Pers.** *Centaurium umbellatum* Gilib. *Common Centaury*.

Native; in poor, dry pastures; unmown roadside wastes; and heathy places. Rather common and well distributed. It would be abundant on Clifton and Durdham Downs, and on Leigh Down, were it not for trampling.

July to September.

With white flowers by the roadside between Banwell and Sidcot, 9 mo. 1834; *Thos. Clark*. And on Worle Hill, 1897. Ursleigh Hill, 1904.

A condensed dwarf form, the product of exposure and close nibbling by rabbits, has been observed on Broadfield Down, Brean Down, and Sand Point. It is the var. *capitata* Koch non Willd.

[**E. littoralis** Fries. Brean Down; *J. C. Collins, MSS.* in *New Bot. G. Suppl.* (1837). "No voucher exists, but the plant was more probably a form of *E. Centaurium*. Mr. J. C. Melville also found on Brean Down what at the time (1873) he thought to be *E. littoralis*, but now refers to *E. Centaurium*."—*Fl. Somerset*, p. 232.]



## GENTIANA Linn.

627. *G. Amarella* L. *Autumnal Gentian. Felwort.*

Native; on dry grassy hills and rocky banks and slopes, preferring limestone and oolite; frequent. August and September.

**G.** Clifton and Durdham Downs, on slopes near the Avon. Combe Down. Pur Down. Wyck Rocks. Stinchcombe Hill; some plants with white flowers. Inglestone Common.

**S.** Riverside opposite St. Vincent's Rocks; *Withering*, ed. iii. (1796). Rocky bank of Avon, Somerset side, August, 1833; *Miss Powell*. Rocky bank by a road through Leigh Woods. Formerly plentiful on a part of Leigh Down which is now enclosed. Upper Failand, in heathy pastures; and on a small bit of roadside common. Barrow Hill, near the Jubilee Stone. West Hill, Wraxall. Tickenham Hill, and behind Wraxall Court. Backwell Common. Chelvey Batch. Castle Hill, Clevedon; *D. Fry*. Walton Down, and along the coast towards Portishead. Banwell Hill. Worle Hill. Weston Hill; *St. Brody*. Uphill. Brean Down. Dolebury. Hill pastures near Cheddar; at Priddy Nine Barrows; and above Ebbor Gorge on Mendip. By the Roman road on Beacon Hill. Barrow Hill near Buckland Dinham; *Dr. H. F. Parsons*. Arthur's Point and Pen Hill, near Wells; *Miss Livett*. Foot of the Grenville Monument on Lansdown; *Miss Roper*. On the Downs, Bath; *Fl. Bathon*. White-flowered plants are plentiful about Bath, on Hampton Rocks etc. 1903; *Miss Peck*.

Mrs. Gregory reports from Brean Down the sub-species *axillaris* Murbeck, and the var. *uliginosa* Willd. These names were attached by Mr. Arthur Bennett, F.L.S. to specimens submitted for his opinion. The former appears to be the common British form of *Amarella*, and Murbeck refers to *Engl. Bot.* tab. 236 for a representation of his plant.—*Bot. Exch. Club Rep.* for 1900.

[*G. campestris* L. *Field Gentian.*

Has never been met with by me in the district. This species has proved a stumbling-block to several generations of local botanists. I fear that all the localities reported in this neighbourhood rest upon misnomers; for, so far as can be ascertained, the plant has always been cited in error for *G. Amarella*. The late Mr. T. B. Flower wrote me in 1883 that the entry in Swete's *Fl. Brist.* "pastures, Clifton" on Miss Atwood's authority was a mistake, as that lady had informed him. Similarly, it was elicited by Mr. Flower that Dr. R. C. Alexander's Bath plants from Lansdown and the Brass Knocker (*Fl. Bathon. Suppl.*), were *G. Amarella*, which is known to grow at both places. The citation "North Somerset" in *Topogr. Bot.* was presumably based on the last-mentioned record. Dr. St. Brody, in his *Flora of Weston-super-Mare*, gives Brean Down and Weston Hill as stations, but nothing besides *Amarella* can now be found at either. Some other stations near Bristol have been given me, but in the absence of specimens I forbear to quote them. According to the *Flora of Somerset*, *G. campestris* has only once been gathered in the whole county—on Long Knoll near Kilmington. Yet it seems to be a plant that we might reasonably expect to have with us, as Mr. D. Fry finds it at Tintern in the Wye Valley. And many localities are given for it in the *Flora of Plymouth*, within twelve miles of the town. From that district the Autumnal Gentian is entirely absent. I suspect that most of the mistakes which have been made respecting these plants are due to the fact that the calyx and corolla in *G. Amarella*, especially in the lower flowers, are sometimes, though rarely, 4-cleft. The essential distinctions between the two species are however well marked. *G. campestris* is similar to the other in general habit, but has a lower stature, paler foliage, and larger and paler 4-cleft flowers; while the two outer and opposite calyx-segments are very broadly ovate, covering the two inner ones, which are narrowly lanceolate.]

## MENYANTHES Linn.

628. *M. trifoliata* L. *Buckbean. Bogbean.* The former is the original name for the plant.

Native ; in swamps and boggy pools ; rare.

May and June.

**G.** A great quantity in the Leechpool, north of Yate ; spread over quite half an acre of swamp. Brought to my notice in 1910 by *Miss Roper* and *F. Samson*.

**S.** Formerly in a small pool near the Keeper's Lodge, Leigh Woods ; now lost, unfortunately, by drainage. First noted there, I believe, by T. B. Flower in 1834. An excursion to the spot is most charmingly described by J. H. Cundall in his *Every-day Book of Natural History*, pub. 1866. Abundant in a large swampy pond, known as "Wurple Pool," on the high ground between Barrow Gurney and Brockley Combe. This was pointed out to me in 1892 by Mr. E. H. Read. Near Tickenham ; *Rev. G. W. Braikenridge's List of Clevedon Plants*. More than thirty years elapsed before the record could be confirmed, but the plant still grows in small quantity about some boggy water holes or spring-heads under Tickenham Hill. Formerly in a boggy spot between Portishead and Clevedon, with *Lastrea Thelypteris* ; *R. V. Sherring*. Repeated search for the place has been made of late years, without result. The condition of that stretch of coast as regards moisture has decidedly altered during the last few decades. At one time there appear to have been, between the two towns, several marshy or boggy spots with springs trickling down to the shore, but through some obscure agency these have almost entirely ceased to flow. In one pond by the roadside between Bickfield and Ubley Mill ; *Dr. Gough*. Abundant at Max Bog near Winscombe. A large pond in the meadows N.W. of Churchill was full of it in July, 1910. Bogs on Mendip ; e.g., in Longbottom above Shipham ; the Mineries ; and some moorland swamps near the top of Blackdown. Bogs in Claverton Wood ; *Dr. Davis* in *Fl. Bathon*. Plentiful on the peat moors, where I have seen plants flowering in October.

There are some plants which offer strange problems for inquiry in the broken or interrupted nature of their distribution. Among local species no more remarkable instances of this discontinuity could be selected than those presented by the Buckbean and the Great Spearwort, whose localities in this district are separated by intervals extended often to a width of many miles. A number of connecting links must have been destroyed from time to time by enclosure and drainage of poor lands, resulting in a gradual disappearance of the swamps and morasses which alone form congenial homes for these paludal species.

## [POLEMONIACEÆ.

**Polemonium cæruleum** L. *Jacob's Ladder*.

Alien. A native of limestone tracts in North Britain but a mere casual elsewhere, occurring only as an outcast from cultivation. It is a favourite garden flower, seeds freely, and seems to maintain itself easily.

**G.** Cornfield, Winterbourne, June, 1849 ; *Herb. Cundall*. Is included in a MS. list of Bristol plants of date about 1830. And has been found near Badminton by Mr. W. Harford.

**S.** Grows at the side of a stream at Vallis, no doubt an escape ; *H. F. Parsons*. Coppice near Bathford ; *Withers* in *Cybele Britannica* vol. iii.

A plant found in South Somerset in June, 1897, is mentioned in *Science Gossip* ; and several localities are known in Wilts.]



## CONVOLVULACEÆ.

CONVOLVULUS *Linn.*629. *C. arvensis* L. *Small Bindweed. Withy-wind.*

Native; on cultivated land, roadsides and waste ground; very common throughout the district. Conspicuous on the dunes of North Somerset.

June to September.

630. *C. sepium* L. *Calystegia sepium* R. Br. *Volvulus sepium* Medic. *Great Bindweed.*

Native; in hedgerows, damp thickets and shrubberies. Very common, and generally distributed.

July to November.

Among wild flowers that are encouraged to grow beyond normal limits by a cool, damp season the large bindweed is conspicuous. In 1909, and again in 1910, the long-continued moisture of the summer enabled this attractive climber to overrun our hedges and lowland banks with matted masses, which seemed to threaten suffocation to those supporting shrubs that had to suffer its embraces. At a period when autumnal leaves and berries are the only hedgerow ornaments, the exceptional luxuriance of this convolvulus, which is so handsome in form of leaf and flower as well as in the manner of its growth, invites a special notice.

631. *C. Soldanella* L. *Sea-side Bindweed.*

Native; on sandy and shingly shores of the Bristol Channel; strictly maritime and local.

June to August.

**S.** Sea sands north and south of Weston-super-Mare; most plentiful in the least-frequented portions of the coast. Its showy flowers are so much gathered by our watering-place populations that I fear the plant is gradually disappearing from the district. The long, strong rootstock, however, renders it difficult to extirpate. There were still some patches in Kewstoke Bay in 1909.

CUSCUTA *Linn.*632. *C. europæa* L. *Greater Dodder.*

Native; parasitic on many herbaceous species. A rare and local plant, confined to the course of the Avon above Bristol. It occurs at intervals on both banks of the river from Bathford downwards nearly to Bristol, and its localities are situate in both counties. The record "on clover near Pill" in Part III. of my former work, issued by the Bristol Nat. Soc. in 1883, should have been placed under *C. Trifolii*.

July to September.

**G.** Conham and Hanham.

**S.** Brislington. Newton St. Loe. Bathford. Bank of the Avon opposite Bathford; *Fl. Bathon. Suppl.* (1839). Mr. T. B. Flower, in conversation with me, mentioned that he knew of this plant on nettles near Bath; and he reported it more precisely from "the second meadow beyond the Dundas Aqueduct."

My introduction to the Great Dodder was made by the late A. E. Burr, in July, 1887, on the left bank of the Avon opposite Bathford Church. Mr. D. Fry and I then saw it growing on *Sinapis nigra*, *Conium*, *Galium Mollugo* and *Solanum Dulcamara*. A week or two later Mr. Burr reported a fresh location in several places on the right bank of the river at Bathford. The plant grew there on numerous hosts in addition to those mentioned above: viz. willow herb, yarrow, great bindweed, comfrey, figwort, ground ivy and bur-reed; but chiefly on the common nettle. In August of the same year, specimens on the large nettle were brought to me by Mr. J. C. House, who had gathered them on the river-bank a long way lower down, near Hanham, at a spot where the plant continued to be plentiful for many years. I have seen it also on the same side nearer Conham. In 1892 Mr. D. Fry showed me a fair quantity at Newton St. Loe, on *Carduus crispus*, *C. arvensis*, etc. In August, 1893 Mr. Chas. Withers, then employed on Fox's Wood sidings, Brislington parish, found an abundance by the Avon near at hand, where it had even got up into the pollard willows, and was hanging in tresses from their bows.

The occurrence of *C. europæa* in this district was first recorded by Gerard in 1597. He wrote (*Herbal*, p. 462):—"Cuscuta, or Dodder, is a strange herbe . . . it groweth upon Time, Winter Savorie, Germander and such like, taking his name from the herbe whereupon it doth growe; as that upon Time is called Epithimum, upon Line or flaxe Epilinum, and so of others as Dodonæus setteth foorth at large; yet hath he forgotten one among the rest, which groweth very plentifully in Sommersetshire upon nettles; neither is it the least among manie either in beautie or operation, but comparable to the best Epithimum. Following therefore the example of Dioscorides I have thought good to call it Epiurtica, and so of the rest according to the herbe whereon they do growe." We have no reliable evidence that the plant was ever noticed in the county of Somerset outside the Avon valley.

Although in Gerard's time the various dodders were not distinguished botanically, yet they were recognized therapeutically as differing in remedial effect. The medicinal virtues of dodder growing upon thyme, upon flax, and upon nettles, are separately specified in the *Historie of Plants*; with an item of particular praise for "that dodder especially that groweth upon brambles." The latter, unfortunately, could rarely have been at a sick man's service; for, judging by present scarcity, it might have been as difficult to procure as mistletoe from an oak. Still, it should be remembered that these parasites often entwine themselves around plants to which they are not attached by suckers, in their endeavour to secure some mechanical support. In that way *C. Epithimum* appears to grow on the Burnet Rose in Kewstoke Bay.

[**C. Epilinum** Weihe. *Flax Dodder*.

Alien; parasitic on flax wherever cultivated, and most destructive to the crop.

July and August.  
**S.** Keynsham; *T. B. Flower*. Mr. Flower informed me that his plant, gathered on flax, was *C. Epilinum* and not *Epithimum* as is stated in *Succæ, Fl.* p. 54. On flax in plenty, between Compton Martin and Ubley; also at West Harptree, on the road to Cheddar; *T. B. Flower* in *Phytol.* I. p. 132 (1840). Near Bristol, 1840; *Mrs. Russell* in *Herb. Brit. Mus.* Miss Roper has some specimens labelled "West Harptree, July, 1847." The collector is unknown.

No doubt the flax dodder came to this country in that remote period when the flax industry was introduced; and being unable to live on any other host is not likely to occur in a district from which the cultivation has died out. In consequence this plant is no longer known about Bristol.]



**633. C. Epithymum Murr. Lesser Dodder.**

Native; on small shrubby or wiry plants in dry situations; rare. Its victims hereabout are, as a rule, more lowly than the heath and furze bushes which are so abundantly affected on the cliffs and commons of our southern coasts. July to September.

**S.** On labiates and bedstraws above Wraxall, July, 1906. On yarrow at Portishead, 1906; *Miss Roper*. Embankment of the G.W.R. at Newton St. Loe, somewhat plentiful on several species of Umbelliferae and Compositae; shown me by C. Withers, August, 1893; *D. Fry*. Over a considerable area in a rocky pasture on high ground above Cheddar, chiefly on wild thyme, July, 1905. On sandhills in Kewstoke Bay, on or entangled with *Rosa spinosissima* and bedstraws, 1906! *F. Samson*. A large patch on *Galium verum* etc. near the light-houses at Burnham, August, 1888. Batheaston, Sept. 1858; *L. Jenyns* in *Herb.*

"This herbe . . . is very littel and smal, and in drie places of this Countrie it groweth upon Wodwaxen, and upon wormwood, as I have seene in my garden."—*Lyte*; p. 398 (1578).

It seems probable that these parasites were more common formerly than they are in our own day. Hill, in 1756, wrote:—"It is common in our fields and gardens, growing upon flax, nettles, heath, or anything in its way, and often plaguing the gardener among his potherbs."

**634. C. Trifolii Bab. Clover Dodder.**

Colonist; on red and alsike clovers in fields of sown fodder; sometimes spreading on to other like plants. Rare; and without signs of increase in the neighbourhood of Bristol. July to September.

**G.** Formerly frequent in fields about Bitton; *Canon Ellacombe*. Three or four patches in a clover-field by the Midland Railway, a short distance north of Charfield Station, August, 1900.

**S.** Clover-field near Pill; September, 1881. Several patches in a fodder field between Abbotsleigh and Failand, 1897 and 1898! *Misses Cundall*. Plentiful in a clover-field at Bathford, 200 yards from the Church, 1885; *A. E. Burr*. Batheaston; *L. Blomefield* in *Fl. Som.*

Swete (*Fl. Brist.* p. 102, 1854) mentions this as having been reported from the vicinity of Bristol, but without the necessary particulars of locality, etc.

We owe it largely to the exertions of the Board of Agriculture that this pest has made so little headway on our farms. It is stated in the *Dodder Leaflet* circulated by the Board that, in 1905, as much as eleven per cent of the clover seed samples examined by the Botanist to the Royal Agricultural Society were condemned owing to the presence of dodder seeds; while two samples of the red clover contained no less than six per cent.

The number of dodder species in the world is estimated at about eighty. They form an extraordinary group of plants, consisting entirely of stems and flower clusters without leaves (the cotyledons even are almost obsolete); and distinguished further by a parasitic habit, a corolla furnished with scales

below the attachment of the stamens, and a filiform coiled embryo. Their seeds germinate in the ground, and at first the plants obtain their food from the soil by means of ordinary roots; but at a certain period these perish, and having found a host to coil around, the parasite then develops entirely by means of haustoria or suckers on food assimilated by the object of attack.

## BORAGINACEÆ.

ASPERUGO *Linn.*635. *A. procumbens* *L. Madwort. German Madder.*

Colonist in arable fields near Twerton, Bath; casual on waste ground elsewhere; rare. May to July.

**G.** Half a dozen plants on a tip in St. Philip's Marsh, May, 1909. By a slip of the pen, or through some confusion with *Anchusa sempervirens*, this plant was reported in 1851 by Mr. S. Rootsey to grow "at Frenchay; also near the Cherry Orchard below Westbury; and a little at Redland." But Swete, who received much help from Rootsey, does not mention *Asperugo* in the *Flora Bristolensis*.

**S.** Several plants with other aliens on some rubbish (sweepings of railway wagons, probably), by Fox's Wood quarries in 1891 and 1892. Shown to Mr. David Fry and me by Chas. Withers. A few small plants in the corner of a field east of Knowle, 1907. Portishead Station-yard, in quantity, 1905! *Miss Peck*. Abundant there, so far, in every succeeding year. In the corn-fields near Bath; *Blackstone* in *Bot. Guide* (1805). This was considered to be an error by the Rev. L. Jenyns in his *Lecture on the Bath Flora*, Dec. 1866; but the record has latterly received ample confirmation. Mr. C. Withers, in 1892, found a considerable quantity in an arable field at Twerton, whence I had it again in 1902 from Miss Martin. Mr. S. T. Dunn also found some near Twerton in 1897. The Madwort, therefore, seems to be constant near Bath; and Mr. Murray (*Fl. Som.*) is doubtless correct in thinking it too persistent to be classed among the casuals. In plenty under a wall by the roadside between Worle and Kewstoke, not far from the New Inn, 1903! *Miss Peck*.

CYNOGLOSSUM *Linn.*636. *C. officinale* *L. Hound's-tongue.*

Native; on dry waste ground by roadsides, grassy downs, and on sea sands. Abundant in a few places, but not generally common. June to August.

**G.** "On the Downs above White Lady Valley, Clifton, July, 1865;" *Miss E. Chandler* in *The Naturalist*, 1866. Stapleton; *Swete, Fl.*, and still



there. Sparingly at Frenchay. Mangotsfield, 1880 to 1892. Shore of the Severn Sea below the Passages. Old Down, Tockington. In plenty on old colliery rubble between Rangeworthy and Yate Rocks; 1908; *C. Bucknall*. About two dozen plants on a waste heap at Dog-trap Colliery, N. of Yate, 1910. Abundant on colliery waste at Parkfield; *F. Samson*. On Yate Rocks; *Miss Roper*.

**S.** Leigh Down, now very scarce. Beggar's Bush Lane. Bishport; and Brislington; *Swete, Fl.* Lanesides near the top of Tickenham Hill, and towards Cadbury Camp. Cadbury; *Miss Livett*. Walton- and Weston-in-Gordano Downs. Clevedon; *W. E. Green*. Churchill; *D. Fry*. Kewstoke Bay. Near the sea between Weston-super-Mare and Uphill. Abundant along the sandy coast from Brean to Berrow and Burnham. Tor Hill, Wells; *Fl. Som.* Not uncommon on waste land; *Fl. Bathon*.

The generic name here corresponds to the English one, and refers to the shape and texture of the leaves, which have been likened to the tongue of a dog. The specific name indicates that the plant was formerly included in the *materia medica* of the London and Edinburgh Pharmacopeias, although to-day its virtues are but little esteemed in medicine. On the Continent until recently, if not at the present time, this herb has been used in pulmonary complaints and dysentery, as well as externally for poultices. Several authentic cases of poisoning by eating the boiled leaves are on record.

Hound's-tongue is distributed throughout the whole of Great Britain; yet it is somewhat remarkable that, excepting parts of the coast line, the plant is very seldom abundant in any district. In some inland counties, *e.g.*, West Yorks, Oxford, Warwick, Hereford and Middlesex; as also in S. Devon and E. Cornwall; it is decidedly rare or local. Fruiting so freely as it does, and producing a bur-like nutlet that adheres tenaciously to most things with which it comes in contact, one might expect that the plant would prove far more frequent, and occur in all kinds of situations.

[*Echinosperrum Lappula* *Lehm.*

Casual; occasionally imported with foreign grain, wool, etc. The generic name suggests a seed or fruit peculiarly fitted to travel by adhesion to all parts of the world.

**G.** For some years on a small colliery heap near Kingswood; now gone. Rubbish tip in St. Philip's Marsh, 1905; *Miss Roper*.

**S.** With other aliens on old quarry ground near Twerton, 1897; *S. T. Dunn*.]

## BORAGO *Linn.*

### 637. *B. officinalis* *L.* *Common Borage.*

Alien or casual; occurring sparingly and ephemerally on waste ground and roadsides near houses; rare. Usually a stray from gardens. June to August.

**G.** Two plants on St. Vincent's Rocks, 1882. Lamplighter's Hall, Shirehampton; and by Stapleton Bridge; *Stephens Cat.* (1835). Naturalized at Stapleton; *Swete, Fl.* A dozen stout plants on Kingsweston Down, 1910, at a spot where the turf had been removed and replaced by imported soil: a tomato and a marigold hard by. Westbury-on-Trym; *Swete, Fl.* One

plant in the Westbury allotments, 1909! *Mrs. Robertson*. Near Sea Mills: a specimen shown at Colston School Flower Show in 1908. Three plants by a roadside on Engine Common, north of Yate, 1910.

**S.** Two plants by a roadside in Leigh Woods, Aug. 1905. Bedminster; and Long Ashton, 1881; *W.E. Green*. One plant on the roadside by a cottage on Tickenham Hill, June, 1906. By the railway at Yatton, Sept. 1850; *Herb. Cundall*. Potato-field by the Clapton Road near Clevedon, 1882, and again in 1905. Two strong plants by the road between Sandford and Winscombe, July, 1905; *C. Bucknall*. On garden waste thrown out near Birnbeck, Weston-super-Mare! 1883. Two plants not far from the same spot, near the encampment on Worlebury Hill, July, 1893. Brean Down; *St. Brody*. Easton; Wookey; and Pilton Wood, 1888; *Miss Livett*. Slopes of Glastonbury Tor; *Fl. Som.* Three plants on Odd Down, Bath! June, 1902. Small quantities in many places; *Fl. Bathon*.

[*Omphalodes verna* Moench. *Picotia verna* R.S. *Cynoglossum omphaloides* L.

Alien. "Indigenous in the mountains of Southern and Eastern Europe. Long ago introduced into horticulture, and occasionally recorded in England as naturalized near gardens."—*Dunn's Alien Flora*.

**G.** Established in a steep, stony wood by the Avon between Hanham and Bitton, where it has been known many years. Shown to me in 1889 by Mr. J. C. House. There are several patches in the upper part of the wood, looking thoroughly wild, with Butterfly Orchis, *Iris foetidissima* and *Ornithogalum pyrenaicum* close by; but I presume the plant was derived from gardens above the wood. The place is not easy of access, so this pretty little interloper will probably stay and spread. Hallen; known for over forty years in a small private wood, and thoroughly naturalized amid the undergrowth of Ivy and Dog's Mercury.

Although but humbly ornamental, *O. verna* is in cultivation here and there in Continental Europe; and, Nyman tells us, occasionally escapes and appears to become wild. So far, it is but little known in this country; but may serve with *Petasites fragrans* as an illustration of the way in which our flora is being gradually supplemented.]

## ANCHUSA Linn.

### 638. *A. officinalis* L. *Alkanet*.

Alien; on waste ground, rubbish-tips, etc. Rare; but holding on well by a strong perennial root wherever introduced, and likely to be always with us on the kind of locality on which it is recorded here. June to August.

**G.** St. Philip's Marsh, on made ground: a good many plants every year since 1902, when it was first noticed.

**S.** By the G.W.R. at Fox's Wood quarries, Brislington, 1891 and 1892. Shown to Mr. D. Fry and me by Chas. Withers, who at that time was employed on the line. Since his retirement the place has not been revisited, as permission to roam along the railway between Bristol and Bath has been refused to us. We saw several other aliens growing at the spot, all sprung evidently from sweepings of goods trucks then lying in quantity by the sidings. Several plants in Portishead Station-yard from 1905 to the present time. In the herbarium of the late Miss Powell there was a specimen gathered at Clevedon, in July, 1839, by Miss E. Braikenridge.

[*A. ochroleuca* MB.

Alien; from Southern Russia. On made ground in St. Philip's Marsh, Bristol, 1908-9. A very distinct species with pale (almost white) flowers. Introduced, doubtless, with imported grain. Has been observed under like conditions in Herts and Berkshire.]



[*A. italica* Retz.

Casual on rubbish in St. Philip's Marsh G. with the last species and several other eastern members of the genus which have not been identified. Found too on waste ground near Bath by Mr. S. T. Dunn.]

**639. *A. sempervirens* L.** *Evergreen Alkanet.*

Denizen; rather rare. Long established about Bristol, and looking like a native in one or two localities. But these are most frequently on roadsides with houses at no great distance. May to July.

A few blossoms may be found expanded as late as the middle of November in some seasons.

**G.** Cook's Folly wood in two or three spots towards the upper side, possibly planted. Under field hedges N.W. of Combe Dingle, and by houses in the lane leading to Kingsweston Down; noticed there first in 1868. Roadside ditch on the north of Henbury Hill; and on a field-border close to the village. Roadside between Staple Hill and Mangotsfield, a little on one side and more on the other, 1904; *Miss Roper*. The larger quantity was in great part destroyed in 1909 by a widening of the road. Oldbury Court Woods; *Miss Roper*. Stapleton and Redland; *H. O. Stephens* in *Swete, Fl.* Frenchay, 1828; *S. Rootsey* and *Herb. Stephens*. It still grows in this old station about Cleeve Hill, Frenchay, in good quantity, scattered along the road on both sides of the Frome for quite 200 yards. Also in the wood at Cleeve, by the river bank. Between Hambrook and Mangotsfield, 1835; *Herb. Powell*. This locality is more precisely defined as lying between Moored and the main road to Sodbury, where the plant is plentiful under walls along the lane. It occurs also near the old mill at Moored, and on both sides of the lane leading thence towards Downend. Hillsley, with *Lilium Martagon*.

**S.** Near Clevedon, perhaps planted, 1881; *W. E. Green*; and in 1891; *D. Fry*. By the Manor House, Abbotsleigh, May, 1897; and under a wall at Hinton Blewett; *Misses Cundall*. Near Kewstoke Lodge, Weston-super-Mare; *St. Brody*. Roadside, Worle; *Mrs. Gregory*. In several places near Wells, and in Dinder Wood; *Miss Livett*. Catcott; *Fl. Som.* St. Catherine's, Bath; *S. T. Dunn*. About Bathaston, as an escape; *Fl. Bathon. Suppl.* Practically unknown in the county of Wilts.

[*AMSINCKIA* Lehm.][*A. angustifolia* Lehm. *Benthamia angustifolia* Lindley.

Alien; a native of Chili. Introduced with foreign grain, and appearing in small quantity from time to time about our docks and warehouses. May and June.

**G.** On rubbish tipped in St. Philip's Marsh, 1901 and again in 1908. Sparingly on dredgings deposited in the Black Rock Quarry, 1883-4. By the smaller dock at Avonmouth, 1906.

**S.** Portishead Station-yard; a few plants from 1903 onward. In May, 1909 a much larger patch of it came up on a chicken-run supplied with refuse from an adjacent corn-mill dealing with S. American maize. The country of origin was thus clearly indicated. Distinguished from its congeners by its erect habit, linear-lanceolate leaves, and calyx-lobes erect at maturity.]

[*A. lycopsioides* Lehm. *Benthamia lycopsioides* Lindley.

Alien; with the last species but less frequent. Very like *A. angustifolia* in general appearance, but differs in its procumbent stem, broader leaves, and calyx drooping when in fruit.

I am indebted to Mr. J. A. Wheldon for a description of this plant, taken from Don's *General System of Botany*, a little-known work. Mr. Wheldon remarks that although stated to be a native of California in Dunn's *Alien Flora*, Druce's *List of British Plants*, etc., the most recent *Flora of North America* does not mention it. It may be suspected, therefore, that both these species have been introduced from the Southern Continent, into California as well as into this country. According to the Abbé Coste, *Amsinckias* made their first appearance in Europe in 1846, in the district of the Tarn and Garonne.]

## LYCOPSIS Linn.

640. *L. arvensis* L. *Small Bugloss.*

Native or Colonist; on cultivated and waste ground. Frequent on gravelly and sandy soil near the coast of N. Somerset; much scarcer in W. Gloucester. May to July.

**G.** On the Avonmouth Railway, 1905; *Miss Roper*. Stapleton; and Westbury; *Swete, Fl.* Downend. Winterbourne. Charfield. Tytherington. Abson.

**S.** Brislington; *Herb. Stephens*. Cornfields near Abbotsleigh and at Failand. Saltford, sparingly. Near Houndstreet; *D. Fry*. Bishop Sutton. Kewstoke Bay. Worle Hill. Uphill. Brean Down. Common along the sands from Brean Down to Berrow and Burnham. Wells; *Miss Livett*. Unmentioned in the *Fl. Bathon.*, nor have I met with it in the vicinity of Bath. A Wilts locality, however, is given in *Fl. Bathon. Suppl.*

## SYMPHYTUM Linn.

641. *S. officinale* L. *Common Comfrey.*

Native; by rivers and ditch-sides, and along wet hedge-bottoms. Common and generally distributed. May to August.

In the Avon valley above tide-way this grows rankly in almost every suitable spot.

As everyone knows, the flowers of the common comfrey vary a good deal in colour. The yellowish-white tint is taken to be the normal one. The purple-flowered variety (*S. patens* Sibth.), although stated to have its calyx-segments more spreading and a rougher pubescence, is now considered not to possess any decided character by which it can be separated from the ordinary plant. Dr. Syme, in *Engl. Bot.* ed. iii., ascribes to this form a different aspect and narrower, less decurrent leaves than to the type; but he goes on to admit that these characters are insufficient. Prof. I. Bayley Balfour remarks as follows:—"So far as I have been able to give consideration to the matter, I have come to the conclusion that there is no character by which *patens* may be distinguished from *officinale* except by that of colour. I think it possible that *officinale* may be the form which is essentially that of roadsides, whilst the purple-flowered plant is one of moister localities."—*Rep. Watson Exch. Club*. The *E. B.* figure, labelled *patens* (tab. MCXVI., not in the original edition), is peculiar. It shows a very distinct plant with pale-coloured flowers (red, changing to rose and pure light blue) and non-decurrent foliage; and represents in reality the *aspermum* so called by Babington (*S. peregrinum* Ledeb.) from which the drawing must have been made. This figure caused me to suppose that *S. patens* was a much more distinctly marked variety than might be inferred from textbook descriptions, and led to my confusing with it the Bath (Brass Knocker) *peregrinum*, which, of course, appeared to be the same thing. My remarks in *Journ. Bot.* 1893, p. 116, prompted by this misconception, were subsequently corrected in the same Journal (1900, p. 279).



**642. *S. tuberosum* L.** *Tuberous-rooted Comfrey.*

Alien with us, though looking wild enough in the damp bottom of Stoke Bishop Wood. In Britain this is a northern species, not accepted as indigenous in localities south of Staffordshire. Yet it takes the place of the common comfrey in the South of France and Central Italy, a region where *S. officinale* is distinctly rare. June and July.

**G.** Under a boundary wall of the big Durdham Down quarry near the Convalescent Home; unknown there before 1906! *Misses Cundall*. Nearly all destroyed, May, 1910, whilst in full flower, by a road-man acting as he said "under [idiotic] orders." But a few roots still remain at the spot. Several clumps in the wood between Stoke Bishop and Sea Mills. This wood at one time was comparatively open, and a kind of path ran down the bottom of it; but to me it seemed an unsuspecting locality, harbouring no planted aliens or garden strays. In the railway cutting east of Clifton Down Station, persistent for some years. In great abundance on a high embankment by Montpelier Station, 1888; pointed out to me by Mr. H. S. Thompson. The plant extended as far as the bridge over the Horfield Road. Its quantity rapidly diminished in later years, when the railway men took to mowing the herbage and huge notice-boards were erected on the slope. Stapleton; *Dr. H. O. Stephens in Swete, Fl. Frenchay; Worsley Cat. in New Bot. G. (1835).*

**643.\* *S. peregrinum* Ledeb.** *S. asperinum* auct. non M. Bieb. *S. uplandicum* Nyman, pp. *S. orientale* Fr. non Linn. *Prickly Comfrey.*

Alien; firmly established in many places for a lengthy period—80 or 90 years, certainly. Doubtless it was originally introduced from the Caucasus as a fodder plant. I do not know any instance of its being cultivated at the present time; but it was so within the memory of elderly persons now living. The experiment must have been tried by a past generation on many farms in the district; and the deeply rooting plant, successfully resisting eradication, held on and spread when thrown out on field-borders, roadsides and hedgebanks, wherever the situation was favourable. It is now found in localities at some distance from cultivated land. June to August.

**G.** Railway bank overlooking St. Philip's Marsh, Bristol, 1911. Abundant in an orchard on the lower side of Blaize Castle Woods! *Miss Roper*. Roadside near Mangotsfield Station! *C. Bucknall*. A number of plants along a roadside hedgebottom south of Siston Court, usually mown at midsummer! *Idem*. Field-border and hedgebank of a lane leading from Olveston to Ingst, fine and plentiful.

**S.** In large quantity by Gatcombe Manor, Long Ashton; on a stream-side! *F. Samson*. On the same (Land Yeo) stream near Flax Bourton Station! *J. W. Eves*. Abundant on the Land Yeo near a big pool by Wraxall pumping wheel, to six feet in height, July, 1907. Along a hedgebottom near the top of Belmont Hill, 200 yds. east of Tyntesfield entrance-gates. Here the plant produces good fruit. Plentiful for 50 yds. or more on both sides of the road from Wrington to Burrington, half a mile from the former village; also in

handsome masses on banks of the stream there at hand, as well as lower down its course. In a wet place, far from any house, near the head of the valley leading from Oakford to The Rocks, apparently wild; *Fl. Bathon* (1834). The Rocks, St. Catherine's, Bath, in great plenty and quite naturalized, June, 1853; *L. Jenyns in herb.* The author of *Fl. Som.* says the exact locality is in Gloucestershire. The boundaries of three shires undoubtedly meet thereabout. I presume the spot is on the Wilts border, as the Rev. T. A. Preston quotes it in his *Fl. Wilts*, and then states, on Mr. Flower's authority (1866), that the place having been drained the plant had since disappeared. But it was one of Mr. Flower's peculiar traits to start a report of the destruction or extinction of a plant without apparent warrant. Mr. Bucknall and I walked up the Oakford Valley in June, 1911, and found *S. peregrinum* there in great luxuriance and plenty on hedgebanks and a wood-border. On Brass Knocker Hill, Bath! *D. Fry.*

Several species of Comfrey have been introduced into this country from the East. Their nomenclature is often confusing and their relations are not well understood. Mr. Cedric Bucknall has undertaken the troublesome task of setting the whole genus in order, and the following remarks are based partly on his notes and conclusions.

In earlier days I distributed many specimens from this district as *S. asperrium*, the name used by Babington in *Fl. Bathon*. In 1879 Sir Joseph Hooker pointed out that the plant differed from true *asperrium* and referred it to *S. peregrinum* Ledeb. Two eminent botanists—Boissier and J. G. Baker—then suggested that *peregrinum* might be a hybrid between *asperrium* and *officinale*; and this view got some support from the frequent variation in minor characters exhibited by plants from different localities. In this neighbourhood they do not correspond in all respects. The one at Wrington has rather shorter and blunter calyx-teeth than the Bath plant or that on Belmont Hill. And the Olveston plant is more asperous than either of the others, while its flowers are darker in hue. Mr. Bucknall looks on *S. peregrinum* as a good species that fruits well, and he perceives no evidence of hybridity in the trifling variations alluded to. We must now believe that the plant so called by Babington and by Syme in *Engl. Bot.* is not the true wild *asperrium* of Western Asia; but that the correct name for the Comfrey widely distributed in this country and on the Continent is *S. peregrinum* Ledeb. Mr. Bucknall remarks that plants are so often found to partake in a greater or less degree of the characters of *S. asperrium* M.B. that it is not surprising to find confusion between the two species, made even by botanists of their native country, Russia.

The true *asperrium* is marked by its strong hooked prickles with conspicuous tubercular bases; cordate or sub-cordate lower leaves and sub-petioled non-decurrent upper ones; and the small calyx with obtuse teeth, four times shorter than the corolla.

*S. peregrinum* is a taller, more robust plant with less prickly stem; oblong or ovate leaves, rounded at the base; upper leaves sessile and often slightly decurrent; the calyx larger with long acute teeth; corolla inflated, often pure bright blue and white at maturity. It agrees well with Ledebour's original



description (*Ind. sem. h. Dorpat*, p. 4, 1820), so far as it goes; better than with some later descriptions, which perhaps accounts for some of the uncertainty attaching to the plant. Ledebour, in the *Fl. Rossica* (after 1841) practically repeats his description of 1820, with the addition that the corolla-scales and filaments exceed the anthers; and as our plant accords so well with the Caucasian plant described by him, there can be little doubt that it is the same.

There is good evidence that the two species once grew together in the Oakford Valley near Bath. Specimens exist, collected by Mr. French, which closely approach *asperrimum*. He sent plants to Dr. Boswell Syme, who cultivated them at Balmuto. In 1879 Dr. Syme distributed specimens, derived in all probability from Oakford Valley plants, through the *Bot. Exch. Club*, and these clearly belong to *S. asperrimum*. With them he sent the following note:—"I have examples [*of asperrimum*] from Bath, collected by Mr. French more than 30 years ago, but it appears to be extinct there now; though the dubious plant *S. uplandicum* Nyman, (*S. peregrinum* Baker), still grows there."

Mr. Bucknall has observed that when *S. peregrinum* occurs alone it develops no characters in the direction of *S. officinale*; but where the two species grow together, as on the banks of the Land Yeo stream and in the Oakford Valley, he finds easily recognizable hybrids. The hybrids have mixed characters. A low stature and leaves more or less decurrent show the influence of *S. officinale*; while the campanulate, blue-tinted corolla comes from *S. peregrinum*. On the margin of a wood in the Oakford Valley some unusually tall plants with the yellowish-white corolla of f. *ochroleuca* may perhaps owe their increased stature to an admixture of *S. peregrinum*; but further observation and study are necessary to settle this point.

*S. peregrinum* forms a handsome garden ornament when grown on good soil.

## ECHIU *Linn.*

### 644. *E. vulgare* L. *Viper's Bugloss.*

Native; on dry gravelly or sandy waste ground, quarry rubble, roadsides and the borders of fields; frequent. June to September.

**G.** St. Vincent's Rocks, 1911! Sea Mills; *W. E. Green*. Cornfields at Horfield and Stapleton; *Swete, Fl.* About the pennant quarries in Glen Frome. In two or three fields between Kingswood and Warmley. Wyck Rocks, and quarries thereabout. Cromhall. Hills above Wotton-under-Edge and Dursley.

**S.** Quarry rubble at Failand. Railway cutting of the G.W.R. below Bristol. Portishead; *Miss Livett*. Weston-in-Gordano; Walton-by-Clevedon; and the high ground above Congresbury; *D. Fry*. On two or three hills at Clevedon; *Mrs. Lainson*. Wrington. Hutton; *St. Brody*. Worle Hill. Brean Down. Sandy wastes and roadsides about Brean, Berrow and Burnham. Chewton Mendip and Mells; *Fl. Som.* On Charmy Down and the tops of several other hills about Bath; *Fl. Bathon*.

First local record:—"Lycopsis vel Lycopsis degener Anchusa . . . in Anglia via quæ Bathonia et Bristolia Londium ducit per messes . . ." *Lobel. Adv.* p. 249 (1570).

"*Lycopsis* . . . Lobel mentions another sort, which he calls *Lycopsis Anglica*, to be found plentifully among the Corn by the Way between *Bristol* and *London*; which no Man since him hath been able to discover, so that I conclude what he observed there was nothing but the common *Echium*."—*Ray, Syn.* ed. 3, p. 227.

[*E. italicum* L. *E. pyramidatum* DC. *E. pyramidale* Lapeyr.

Alien; from the Mediterranean region, very rarely seen in Britain. A beautiful species.

G. On the Avonbank Estate, St. Philip's, Bristol; July, 1907. Two plants there in 1909.

S. Portishead Station-yard, 1909.]

### PULMONARIA Linn.

#### 645. *P. officinalis* L. *Common Lungwort.*

Alien; much better known as a favourite in the garden border than as a wild flower, and not considered to be certainly indigenous anywhere in the West of England. In some parts of the country—Suffolk, Worcestershire and Kent—it is reported to grow in abundance, and may carry some marks of a native plant; but with us it is only a trifling stray that has difficulty in naturalizing itself and does not spread. April and May.

G. Stoke Bishop Wood, 1911. Berwick Wood near Hallen; where it has escaped from a garden on the upper side of the wood. I saw it flowering there in April, 1898. Wyck Woods; *T. B. Flower* in *Fl. Bathon. Suppl.* Iron Acton; on a rocky bank above the old mill-lead, with *Smyrnium*, Daffodils, etc.

S. St. Anne's Wood, Brislington; *G. Rogers* in *Stephens Cat.* (1835). Hedge-bank of a lane at Flax Bourton with other aliens: only a small clump producing very few stems, but established many years.

The Rev. E. S. Marshall has suggested that the var. *immaculata* Opiz represents the presumably wild plant of East Suffolk, etc., which is stated to have unspotted foliage of a brighter green than the garden form; a distinction proved to be permanent under cultivation.

### LITHOSPERMUM Linn.

#### 646. *L. officinale* L. *Common Gromwell.*

Native; in shady and stony places; frequent.

June to August.

G. Rocks about Clifton Zigzag; *Miss Atwood* in *Swete, Fl.* Thickets towards the top of the Black Rock Gully, and in several places nearer the riverside. Bushy slopes about Combe Down and the Trym valley below Westbury. Lawrence Weston. Stapleton and Horfield; *G. H. K. Thwaites* in *Swete, Fl.* The Old Down above Tockington. Near Damery Bridge.

S. Bank of Avon, here and there in several spots under Leigh Woods. Laneside between Abbotsleigh and Failand. Belmont Hill. Frequent on the outskirts of the Rectory Wood, Wraxall, and by the woodland paths; as well as on the West Hill. Tickenham Hill, and grassy sides of the lane leading thence to Cadbury Camp. Chelvey Batch. Brockley Combe. Weston-in-Gordano. The Court and Strawberry Hills at Clevedon, and Walton Down



*W. E. Green.* Quarry sides and open woodland above Congresbury; *D. Fry.* Hedgebanks between Stanton Drew and Chew Magna. Between Stockwood and Keynsham, sparingly: singularly rare in the Keynsham district; *D. Fry.* Churchill. Weston-super-Mare; *St. Brody.* Roadside between Chelwood and Houndstreet; *C. Bucknall.* Croscombe; Claverton and Englishcombe; *Fl. Som.* Wookey Hole; *J. G. Baker.* Ebbor and West Horrington near Wells; *Miss Livett.* Quarry near Wells; *H. S. Thompson.* In several places about Whatley and Nunney; *Rev. S. Laing.* Friary Wood, Freshford; *D. Fry.* Plentiful on roadsides and wood borders about Midford and Hinton Charterhouse. Common in waste ground, old quarries, etc.; *Fl. Bathon.*

**647. *L. purpureo-cæruleum* L. *Purple Gromwell.***

Native; in woods and thickets, on limestone. Very local, but usually abundant in its localities. May to July.

[*G.* "Henbury near Bristol; in Mrs. Brookes' wood, where I suspect it has been planted, May, 1835."—*Herb. Bristol Museum.* Anonymous, but evidently by a resident at Henbury. Nothing further is known of this.]

*S.* Limeridge Wood, near Tickenham! *Miss Roper.* Outskirts of the woodland above Weston-in-Gordano, on the ridge between Portishead and Clevedon. Cleeve Wood; *Herb. Stephens.* The plant grows in many places throughout the continuous chain of woods that extends from Cleeve to the top of Rhodyate Hill; King's Wood, Yatton; and Col. Long's woods above Congresbury; forming tangled patches by the open spaces. Sandford Hill; *W. B. Waterfall.* Queen Wood, near Winscombe; *H. S. Thompson.* Callow Wood, Rose Wood and King's Wood on Shuteshelve, Mendip; in plenty. Woods between Axbridge and Cheddar, in profusion; and along an old lane below Cheddar Wood. Roadside in Longbottom on Mendip; *Fl. Som.* Border of wood above Rodney Stoke. Hutton. Brent Knoll; on the brow of the long, lower shoulder of the Knoll, immediately above the village of South Brent; *D. Fry.* First reported thence in almost the same words by Thos. Clark about 1835; *New Bot. G. Suppl.* Wood on Mendip near Wells; *Miss Livett.*

This rare and interesting flower has other localities in Somerset, extending so far south as within a few miles of Taunton; and there are also several in other counties—Denbigh, Glamorgan, Devon and Kent. But its headquarters in Great Britain are on and about the Mendip Hills in our own district, where its abundance exceeds that of all the other stations in the country put together.

The first British observation of the plant dates from 1670, by John Ray "not far from Taunton." A reference to Ray's noteworthy allusion, in his *Synopsis*, to the peculiar creeping habit of this species, is made in the biographical notice of that remarkable man. And the present writer has drawn attention to the curious way in which its barren stems root at their tips in an article published in *Journ. Bot.* 1884, p. 74.

**648. *L. arvense* L. *Corn Gromwell.***

Colonist; in cultivated and waste ground, sparingly and infrequent.

May to July.

*G.* By Montpelier Station, 1882. On rubbish tipped in St. Philip's Marsh,

a few plants yearly. Allotments, Westbury-on-Trym. Among vetches, corn, etc., between Filton Meads and Charlton, 1895 to 1909. Lawrence Weston; *Herb. Powell*. Bitton. Eartheott Green. Rangeworthy. Abson. Olveston.

**S.** As a garden weed at Brislington. Very sparingly in fields with vetches, etc., at Stanton Drew, Stanton Wick, and by Featherbed Lane, Clutton; and more plentifully about Norton Malreward and Norton Hautville; *D. Fry*. In several fields about Chew Magna. With sown fodder at Wraxall. Portishead Station-yard. In a fallow on Ashton Hill, Corston; *D. Fry*. Winscombe. Cornfields about Hutton and Uphill; *St. Brody*. Easton, and one or two other spots near Wells, in small quantity; *Miss Livett*. Odd Down and Combe Hay, 1902 and 1904. Cornfields near Bath; *A. E. Burr*. Frequent in cornfields; *Fl. Bathon*.

Although still rather scarce and uncertain, this plant seems to be more frequent with us now than it was sixty years ago. Swete had no personal knowledge of it in the district, and entered it solely on hearsay in his *Fl. Brist.* If it were not sown with fodder plants now and again, the Corn Gromwell would rank with our rarities.

[*Cerintho minor* L.

Alien; a rare introduction from the Orient.

**G.** On made ground, St. Philip's, Bristol, 1907 to 1909. The only record.]

### MYOSOTIS Linn.

**649. M. scorpioides** L. *M. palustris* With. *Forget-me-not*.

Native; in wet boggy ground, frequent.

June to August.

**G.** Glen Frome, Stapleton; and Westbury-on-Trym; *Swete, Fl.* Still in the Trym valley. Swamp on the lower side of Siston Common. By the Boyd at Bitton, and in the great withy-bed near the paper mill. Old quarry pit on Bury Hill, near Moorend. By the Frome between Winterbourne and Iron Acton. Charfield. Tortworth. By Sodam Mill, Cromhall.

**S.** Keynsham and Pensford, by the Avon and the Chew; *D. Fry*. Moor ditches between Nailsea and Clevedon. Kenn Moor. Yatton. Weston-super-Mare; *St. Brody*. Moors between Cheddar and Wedmore. Peat ditches at Edington, Ashcot, and towards Glastonbury. Streams and ditches, frequent; *Fl. Bathon*.

"From its resembling the 'brightest eye of blue' I take this to be the true eye-bright, which is the name it bears about Bristol."—*S. Rootsey* in *Trans. Med.-Bot. Society of London*, p. 205 (1832).

Few flowers are more ornamental than the Forget-me-not. The plant is a beautiful feature of the upper Frome valley, where it sometimes occurs in luxuriant masses that are worth travelling far to see at the middle of July.

VAR. *strigulosa* R.

**G.** By the Frome near Iron Acton; *C. Bucknall*.

**S.** Max! [near Winscombe]; *W. F. Miller* in *Fl. Som.* p. 418.



**650. *M. repens* Don.** *Creeping Water Forget-me-not.*

Native; in wet boggy ground, and often about spring-heads on the hills; rather rare. June to August.

**G.** Valley of the Trym. Filton Meads. Glen Frome. Siston Common. Rills on the hillside near Horton and Hawkesbury. Tortworth. Between Winterbourne Church and Bradley Brook; *C. Bucknall*.

**S.** Bedminster Meads. Brooksidcs near Long Ashton and Flax Bourton. Moors near Tickenham, Nailsea, Yatton, and Clevedon. Dykebanks, Portbury; *Misses Hill and Peacock*. Boggy springs on the slopes of Mendip. Downhead Common; *Fl. Som.* Horrington; and moors near Wells; *Miss Livett*.

**651. *M. cæspitosa* Schultz.** *Tufted Water Forget-me-not.*

Native; in damp woods and meadows, frequent. June to August.

**G.** Boiling Well under Ashley Hill; *Miss Roper*. Stoke Bishop, 1884. Shirehampton; *Herb. Stephens*. Lawrence Weston. Charlton. Patchway. Siston Common near Mangotsfield. Westerleigh. Yate Common; *C. Bucknall*. Roadside pond, Moorend. Compton Greenfield. Lyde Green. The Leechpool. Damp roadside near Rockhampton. By the Boyd stream in several places. Swamp in the bottom behind Winterbourne Church. Between Falfield and Wickwar. Iron Acton. Charfield. Berkeley.

**S.** Bedminster Meads. Portbury. Between Publow and Queen Charlton; and in wet fields at Norton Hautville; *D. Fry*. Pensford; *C. Bucknall*. Near Yatton. Downside Common, Edford. Berrow Marsh. Wells. Eaker Hill, Mendip; *Miss Roper*. Ditchbanks at Uphill and Locking.

[*M. sylvatica* Hoffm. *Wood Forget-me-not.*

This occurs occasionally as a garden outcast, as on Kingsweston Down, 1910-1911; but has no pretence of being a native plant in the district. Only once have I seen it apparently wild; when in May, 1897 Mr. D. Fry and I met with a single root in the Fir Wood, Clevedon. In other stations from which the plant has been reported I believe the large wood form of *M. arvensis* has been generally mistaken for it. This must certainly have been the case with Swete in *Fl. Bristol*, where *sylvatica* is stated to be "Frequent in woods and shady places."]

**652. *M. arvensis* Hill.** *Field Scorpion-grass.*

Native; on hedgebanks, wood-borders, and as a weed in cultivated fields. Very common and well distributed. June to August.

There is to be found in the damp shade of hedge-bottoms and the like a tall form of this species, with larger, more conspicuous flowers and broader leaves; which is the plant I have mentioned as likely to be mistaken for *M. sylvatica*, unless carefully examined for essential characters. It is merely a luxuriant state. Although formerly distinguished as the var. *umbrosa*, Prof. Babington concluded later that it was undeserving of special notice and struck it out of his *Manual*.

**653. *M. collina* Hoffm.** *Early Field Scorpion-grass. Dwarf Forget-me-not.*

Native; on rocky banks, dry turf, walls, and coast sand-hills; common. April and May.

**G.** St. Vincent's Rocks, and dry banks upon the Downs. About the quarries and rubble slopes under the Down. Brandon Hill. Combe Down. Penpole Point. The "Hogsback," Blaize Castle; *Miss Thompson*. Kingsweston Down. Glen Frome. Rodway Hill. Henbury and Cook's Folly; *Swete, Fl.* Charlton. Siston. Almondsbury Hill; and old limestone walls in the village.

**S.** Hillsides about Providence and Ashton Tump. Long Ashton Common. Failand. Portishead. Clevedon. Queen Charlton. Corston; *D. Fry*. Cleeve Toot. Almost everywhere along the Mendip range. Kewstoke Bay, and Sand Point. Plentiful on the sandy coast from Brean Down to Burnham. Worlebury Hill, Weston-super-Mare. Uphill. Steep Holm. Hallatrow. Mells. Ston Easton. Lansdown and elsewhere on the Bath hills. But neither this nor the next species is mentioned in the *Fl. Bathon*.

**654. *M. versicolor* Sm.** *Yellow and Blue or Changeable Scorpion-grass.*

Native; on dry banks, wall-tops, and sandy or heathy waste ground. Common. April to July.

**G.** Brandon Hill; *G. H. K. Thwaites*. Redland and Stapleton; *Swete, Fl.* Frequent on sandstone banks and quarry ground in Glen Frome, near Stapleton and Fishponds. Westbury-on-Trym. Bentry. Rodway Hill near Mangotsfield. Siston Common. Peaty field near Vinny Green. By the Midland line near Yate. Laneside near Frampton Cotterell. Coarse pasture by the Ladden Brook near Iron Acton. With flowers at first white at Damery Bridge. This variation is ascribed by Prof. Babington to "plants in damp places." Dursley. Berkeley. Woodford, near Stone.

**S.** Bedminster Down. Hillside at Ashton Tump. Ham Green. Abbotsleigh. On the coal-measures between Brislington and Keynsham. Flax Bourton. Furzy ground and wall-tops about Stanton Drew; and in two or three places near Keynsham; *D. Fry*. Abundant on Stantonbury. Hartcliff Rocks; *Miss Roper*. Very plentiful in grass-fields at Portishead. Walton-in-Gordano. Wraxall Hill. Cadbury Camp. On the Court and Strawberry Hills, Clevedon; in both instances on the Pennant formation, and associated at each locality with *Ornithopus perpusillus* and *Aira præcox*; *D. Fry*. Hillsides near Yatton. Brean Down. On the coast sands at Brean and Berrow. Ebbor and Pen Hill near Wells; *Miss Livett*. Asham Woods and Burtle Moor; *Fl. Som*.

## SOLANACEÆ.

### SOLANUM *Linn.*

**655. *S. nigrum* L.** *Black Nightshade.*

Native possibly on the coast; but essentially a weed of cultivated and waste ground, especially near houses. More common than formerly, and still increasing in frequency. July to October.



**G.** Plentiful on Wapping Wharf, Bristol Harbour, 1911. Durdham Down; several times on the site of an exhibition or cattle-show. Near cottages at Stoke Bishop, 1884 and 1900. On dredgings deposited in the Black Rock quarry, 1883. Fifty or more large plants in a building-plot on the Downs Park Estate, 1909; *Misses Cundall*. Often on rubbish in St. Philip's Marsh. Stapleton; *Herb. Stephens*. Netham; *Sweete, Fl.* Sea Mills, 1878; and on potato-ground there in 1900. Kingsweston Down, abundant near the quarry, 1910. Shirehampton allotments, 1900; and by the riverside path below Lamplighters, 1909. Downend, 1883; *O. Giles*. I saw it there on a rubbish-heap in 1902. Persistently about market gardens between Hanham and Kingswood. Abundant in a cultivation by the Avon below Hanham Mills, 1909. Railway bank, Hallen Marsh, 1898; *Miss Roper*. Almondsbury; on a field border. Dursley; in a potato patch. A two-inch plant flowered well in a chink of the pavement in Woodland Road, Clifton, August, 1906.

**S.** Garden weed at Knowle; *Rev. W. H. Painter*. Brislington. Saltford; *Miss Roper*. Waste ground, Clevedon, several years; and at Walton-by-Clevedon, 1905; *D. Fry* and *W. E. Green*. Among potatoes at Portishead, Sept. 1887. Fine and plentiful there on waste ground, 1907. Shingly shore under St. Thomas' Head, Woodspring, in 1888, 1892, and 1901. Kewstoke. Weston Hill, 1856; *St. Brody*. Common about Weston-super-Mare; *Mrs. Gregory*. On roadside waste heaps and cultivations along the coast road from Brean Down to Berrow and Burnham; permanently established. Frequent on the peat moors. "A weed in gardens and fields," 1834.—*Fl. Bathon*. Very rare about Bath, 1866; *Rev. L. Jenyns*.

The berries of this species lie under the poison ban, although unpleasant symptoms from eating them have so far been noticed only in children, and then very rarely. The deleterious effects may even depend on idiosyncrasy of the individual, for these berries contain little more solanine than do tomatoes. Dioscorides, whose description of the garden nightshade agrees well with *Solanum nigrum*, states that it may be eaten without danger; and practitioners have used it in comparatively recent times.

Mr. E. M. Holmes, a well-known authority on *materia medica*, in *Pharm. Journ.* 1909, p. 422, gives a caution to the following effect. During the last year or two the fruit of a luxuriant form or hybrid of *S. nigrum* has been introduced in the United States by Mr. Luther Burbank under the name of "Wonderberry" and has found its way into this country. How far this cultivated form differs botanically from the ordinary English weed has not been clearly defined. The "Wonderberry" is described as a robust plant with large foliage and petals marked with purple lines through their centre, which lines are absent in *S. nigrum*. The fruits are said to be larger and less shining than those of the wild plant, and their flavour to be decidedly distinct. Naturally, considerable doubt exists, so far, as to the wisdom of feeding on these berries; especially as, in commerce, wild fruit might be sometimes offered under the same name. Under these circumstances experimentalists are advised to begin on berries from the new cultivated form, and to eat them only when cooked. Unpleasant consequences will thus be almost certainly avoided.

**656. *S. Dulcamara* L. Bittersweet. Woody Nightshade.**

Native; in hedges and thickets; generally distributed. Common on bushy ditchbanks in the lowlands. The rare white-flowered form grows on wet ground near Bitton, G. June to September.

The herb itself (dried stems and leaves) is by no means poisonous, and was until recently an officinal medicine; but many cases are on record of the noxious effects of its berries on children. Young folk die every autumn through eating poisonous berries of one kind or another. These are commonly described in the newspapers as having been plucked from "deadly nightshade," "bryony," or "briars." It seldom appears at an inquest that any competent person has traced the mischief to its source. Three lads at a Naval School in Norfolk were poisoned in this way at the beginning of September, 1909; and at the end of the month two more deaths took place in another county. In the last cases it seems to have been proved that the berries eaten were those of *Solanum Dulcamara*.

[*S. rostratum* Donal. Casual.

A Mexican species found in 1882 on a small colliery heap near Kingswood, G., where it was supposed some corn-sifting had taken place.]

[*Nicotiana rustica* L. Casual.

One fine plant sporadic on Kingsweston Down, G., Oct. 1911.]

**ATROPA Linn.****657. *A. Belladonna* L. Deadly Nightshade. Dwale.**

Native or Denizen; in open woodland. Very rare in the southern division of the district, but quite frequent about oolitic hills of the Cotswolds on our northern limit. June to September.

**G.** Railway bank below Sea Mills Station, 1910; *C. Bartlett*. Several plants in a clearing of the wood between Combe Dingle and the Arbutus Walk, July, 1903; pointed out to me by Mr. H. J. Charbonnier. Two fine ones on Kingsweston Down, 1909-1911, mown with the grass in July; *J. W. Eves*. A bush that occurred casually and flourished for a time some years ago, on a railway embankment near Stapleton Road Station, attracted the attention of Mr. A. E. Hudd and became known to many persons. Frequent on the warmer slopes of Westridge Wood above Wotton-under-Edge. Formerly so abundant about Stinchcombe that large quantities were gathered there for pharmaceutical purposes. As recently as 1868, 83½ pounds of the fresh herb were cut and forwarded in one consignment to a chemist's laboratory in Clifton: yet in July, 1880, when the Botanical Section of the Bristol Nat. Soc. made an excursion to the Hill, only three plants could be found. It cannot be supposed that the old practice of cutting the plant for sale could extirpate it; for, if untouched, the stems would die down every winter. Belladonna is now very extensively cultivated in this country for medicinal use; but it is a tradition with those who intelligently practise the art of applied pharmacognosy that a wild herb gives better results than a cultivated one. A few miles further north in the Cotswolds I have seen woodland slopes covered with hundreds of belladonna bushes, which appeared to have sprung up after the brushwood had been coppiced.



**S.** Leigh Woods. In June, 1892, Mr. R. M. Prideaux conducted me to two fine plants which he had discovered while moth-hunting in a previous season. They were hidden in an old excavation in an open part of Leigh Wood, at some distance from any path, and were seen again in after years. Hedge by Water Lane, Failand, 1911; *H. F. Levy*. Weston-super-Mare; *Rutter's Hist.* (1829). "Reputed to grow in hedges near Kewstoke, and on Weston Hill, about the encampment."—*St. Brody* (1856). This record has been confirmed in part by Mr. F. A. Knight, of "Wintrath," who told me in 1898 that he then knew one bush in Kewstoke Bay towards Sand Point; and, further, that in former years he had several times seen Belladonna on Brean Down. In his *Seaboard of Mendip* Mr. Knight makes the following reference:—"In a hollow near Sand Point there lately grew a clump of Deadly Nightshade." Wood near Sham Castle, Bath; *Herb. Jenyns*. Farleigh Castle and Claverton Wood; *Dr. Davis* in *Fl. Bathon.* (1834). Claverton, 1888; *T. F. Inman*. About the ruins at Farleigh Castle, 1889; *A. E. Burr*. Very fine in a hedge near Farleigh Castle; *Fl. Som.*

This is probably the most dangerous British plant. The rich, black fruit is tempting in appearance, sweetish, and without any remarkable or repulsive flavour, so that children and others have often eaten it and have died. Even a single berry is said to have proved fatal to a young child. There was an excellent reason, therefore, in the interest of the little ones, for removing a handsome specimen of the "insane root" from a shrubbery in our Zoological Gardens.

*S. Rootsey*, in *Trans. Med.-Bot. Society of London* (1832), says, "Hebenon. I conceive this plant to have been the *Atropa Belladonna* which, where it is wild in Gloucestershire, is by the country people called 'Ink-berries.' From the following passage I think it may have been used for poisoning darts and javelins.

'Love's golden arrow at him  
Should have fled,  
And not death's *ebon* dart  
To strike him dead.'

*Venus and Adonis.*"

## HYOSCYAMUS *Linn.*

### 658. *H. niger* *L.* *Henbane.*

Native, probably, on the coast in both divisions of this district. But on waste ground, rubbish heaps and such places away from the sea, it appears as a sporadic casual weed; often singly and never continuously in the same spot. Its reappearances in any situation are curiously uncertain and irregular. Rather rare inland: frequent by the Channel. June to August.

**G.** St. Philip's, Bristol, on ground made by tipping refuse; several plants in most seasons since 1898, but I found one only in 1909 and one in 1911. Spontaneous in a Clifton garden, 1907. Plentiful on Wapping Wharf, Bristol Harbour, 1911. Shirehampton, 1849; *Sweete, Fl.* And in 1871; *W. W. Stoddart*. Two plants there, July, 1880. One at Avonmouth 1900, and three

in 1904. Two at Baptist Mills, 1911; *I. W. Evans*. Hanham, 1871; *W. W. Stoddart*. Two by a roadside in Glen Frome, 1901. On top of the rocks at Wyck; *Fl. Bathon*. (1834). Shingly beach by the Severn between Avonmouth and New Passage; at intervals from 1866 (*Herb. St. Brody*) to the present time, but never to be relied on. In 1908, although entirely absent from its usual station, Mr. J. H. Priestley found 50 or 60 plants at a little distance higher up the Severn.

The great storm of December, 1910, wrought havoc on this beach, destroying the surface vegetation and driving a good deal of the shingle inland over the sea-bank. Yet, young plants of Henbane sprung up abundantly the following summer, presumably from seeds that had been long buried and then brought to the surface by that inroad of the sea.

**S.** Lock's Mills, 1850; *Sweet, Fl.* Four plants west of Hengrove House, Knowle, 1888; *J. F. Hopkins*. One in allotments at Knowle, 1910; *J. E. Moore*. At least twenty plants on the embankment of a new road at Ashton Gate, 1906. One in a pasture at Wraxall, 1905; *J. W. Eves*. Waste ground about Portishead, chiefly on the Station sidings and by the Dock, from time to time since 1881. One plant at Bye Mills on the Chew, 1909. Keynsham; a single plant in 1899, and one in 1906; *Miss Roper*. Walton Hill, Clevedon; *C. Bucknall*. Three or four plants on shingle near the rifle-butts at Clevedon, 1881; but none there afterwards though looked for repeatedly; *D. Fry*. A few on the Woodspring shingle under St. Thomas' Head, 1907; *Miss Roper*. Kewstoke beach, not common; *St. Brody* (1856). One plant at Weston-super-Mare, 1880. Uphill, 1904. Brean Down, 1879, 1888, and 1910, on ground sloping southward to the shore. Coast shingle near the hamlet of Brean; quite 100 plants in 1885; *D. Fry*. I noted a similar crop there in 1888; and again in 1898; but only half a dozen in 1909. Roadside waste and rubbish heaps about Berrow Church and village; and by lanes leading thence to Brent Knoll; in varying quantity year by year from 1879. The bit of sandy waste that yielded the finest plants in bygone years is now, alas, well-rolled sward, and appropriated for golf. Plentiful on Dolebury; *G. Horner* in *Fl. Som.* On Mendip, and now and then about Wells; *Miss Livett*. Occasionally on droves in the peat moor; *T. Clark*. Weston lane near Bath; *Dr. Davis* in *Fl. Bathon*.

The trait of eccentric seed-germination which renders the plant so oddly uncertain in a wild state marks it also in cultivation. Henbane is the despair of a cultivator. Mr. F. Ransom, who grows medicinal plants on a large scale at Hitchin, speaks of this crop as a most tricky one. In some seasons, if the little-understood conditions which govern the plant's welfare be unfavourable, nothing at all will come up from a spring sowing; but two or three years afterwards, when another crop is on the ground, the dormant seed, roused into activity by some stimulating influence, will spring up thickly and perplex the farmer with an embarrassing mixed growth. It will be readily understood, therefore, why the dried leaves and flowering tops of biennial henbane often command a high price, approaching occasionally the value of their weight in silver. It need hardly be said that at such times the practical pharmacist, if in luck's way, is more than content to cut and carry a heavy fetid bundle some



miles on a sweltering July day. The drug is really a valuable one; to be preferred, one might suppose, to some of the modern synthetic coal-tar soporifics which are largely displacing it. Here again experience has shown that the wild seaside herb, carefully "saved," is more effective than the product of cultivation.

A strong henbane plant will produce a vast number of seeds, and these must be endowed with astonishing vitality to enable them to remain in the ground uninjured for lengthened periods. An old friend residing at Weymouth observed some years ago a remarkable occurrence in this relation. A large house on the parade that had been standing a century or so was pulled down and the cleared ground left vacant for a time. Henbane showed itself almost immediately and grew luxuriantly all over the foundations. The locality had long been covered with houses, but anciently it had been a sand-spit or beach, with salt water on both sides, where no doubt the plant had flourished at a remote period. No other source for it in the case just mentioned could be imagined.

### LYCIUM *Linn.*

#### 659. *L. chinense* Mill. *L. barbarum* L. *Box-thorn. Tea-plant.*

Alien; widely planted in fences by the sea; and sometimes of spontaneous growth in hedges and waste ground near houses. June to August.

**G.** Several bushes in a hedge by the main road on Kingswood Hill. Severn Beach, below New Passage. In plenty by the Severn near Berkeley.

**S.** Stanton Drew; *D. Fry*. By the sea-bank below Clevedon; *Miss Livett*. Frequent about Kewstoke and Milton, near Weston-super-Mare. And about nearly all the Channel-side hamlets from Uphill to Brean, Berrow and Burnham.

An ornamental shrub that gets a good hold on loose, sandy soil; grows vigorously; and stands full exposure to sun and wind. In autumn the scarlet berries are very pretty, but it is doubtful if much seed be perfected.

The origin of the name Tea-plant is thus stated by Loudon. "Commonly called the Duke of Argyll's Tea-tree, from the circumstance of a tea-plant having been sent to the Duke of Argyll at the same time as this plant, and the labels having been accidentally changed." This happened at the beginning of the eighteenth century.

### DATURA *Linn.*

#### 660. *D. Stramonium* L. *Thorn-apple.*

Casual; usually on rubbish and manure heaps, or in neglected cultivations; rare. The locality at Woodspring is the only one in which it has any semblance of being established, and its holding there is manifestly precarious.

July to September.

**G.** Redland; *A. Leipmer* and *L. W. Rogers*. One plant on rubbish in St. Philip's Marsh, July, 1906. Shirehampton, 1870; *F. R. Martin*; and 1879, *W. W. Stoddart*. Avonmouth; *E. Wheeler*. One plant at Pilning, 1881;

*J. C. House.* Dunghill, Bristol; *Herb. Stephens.* Is mentioned in an old list of Bristol Plants circa 1830.

**S.** One fruiting plant in a lane leading from Publow to Ursleigh Hill, 1887; *D. Fry.* Rubbish heap at Walton-in-Gordano, 1900; *Mrs. Gregory.* Three or four plants in a fallow between Twerton and Englishcombe, near the chapel on top of the hill, 1886; *D. Fry.* Several strong plants on the shore just above high-water mark at St. Thomas' Head, Woodspring, Sept. 1888. Still there in 1906, when Mr. F. Samson saw two specimens; one there in 1907, and twenty small ones in 1909; thus proving that the plant had maintained itself at the spot more than twenty years. In cultivated ground, rare at Wells; *Miss Livett.*

Not mentioned in *Suete, Fl.*, nor in *Fl. Bathon.*

## OROBANCHACEÆ.

### OROBANCHE Linn.

**661. O. major L.** *O. Rapum-genistæ* Thuill. *Greater Broom-rape.*  
Native; parasitic on furze and broom; very rare. June and July.

**G.** Cook's Folly Wood; *T. B. Flower* in *Suete, Fl.* Mr. Flower informed me that he found it on both furze and broom. Rocks below Cook's Folly, June, 1849; *J. H. Cundall.* On a small broom-covered common near Leap Bridge, between Mangotsfield and Moored; discovered by Miss Roper in June, 1898. Visiting the place a few days later I saw four clumps of the plant; seven stems in one, and from three to five in each of the others. Two that were cut measured 2 ft. 9 in., and if dug up would have been 3 feet over all. Soon afterwards the whole of the bushes (broom and brambles) were grubbed or cut down in an attempt to make pasture: one stem of the Orobanche, however, appeared in 1905. Ivory Hill, near Coalpit Heath, 1904; three or four stems on broom; *Miss Roper.* One stem was seen there in 1905; and three in 1906; *C. Bucknall.*

**S.** On furze at Easton, near Wells; *Miss Livett.*

[*O. speciosa* DC. *O. pruinosa* Lapeyr.

Alien; parasitic on beans and peas throughout Southern Europe. Twice found near Bristol.

**G.** Three plants on vetches in St. Philip's Marsh, 1905. In a bean-field near Charlton, 4 Sept., 1845; *Miss Powell* (as *O. caryophyllacea*). In 1880, with a narrower experience than I now possess of the difficulties in making out dried broom-ropes, I felt satisfied that Miss Powell's naming was correct: so her plant was published as *caryophyllacea* in my earlier work. Doubt came later; and when in 1906 I had an opportunity of laying the specimen before Mr. Arthur Bennett, F.L.S., he decided that it was the introduced plant under which I now place it. The true *O. caryophyllacea* is, in Britain, entirely confined to S.E. Kent, where it grows on *Galium mollugo*. What warrant there may have been for the statement in *Phytol.* N.S. 1863, p. 446, that this rarity had been found near Bath cannot be learnt.

*O. speciosa* shows itself extremely seldom in this country. In *Engl. Bot.* Dr. Syme records a single specimen only, from Bridgwater in 1860; while in Dunn's *Alien Flora* the plant has no place.]



**662. *O. elatior* Sutton. Tall Broom-rape.**

Native; parasitic on *Centaurea Scabiosa*; very seldom indeed on any other host. Extremely rare. June and July.

**G.** St. Vincent's Rocks; *Swete, Fl.* Mr. Flower told me that he also had found this at Clifton, on *Centaurea Scabiosa*. Near Bristol; *Worsley Cat.* in *New Bot. G.* (1835). But the plant is queried for West Gloucester in *Topogr. Bot.* Wyck Cliffs, 1867; *Herb. St. Brody*.

**S.** One plant at Portishead, 1904! *Mrs. Gregory*. In a field near Clevedon Beach, Aug. 1834; *Herb. Powell*. Cheddar, one specimen, 1883; *Richards* in *Fl. Som.* Plentifully on Brean Down; *J. C. Collins MSS.* in *New Bot. G. Suppl.* Cited for North Somerset too in *Topogr. Bot.* on Collins' authority. But, as is suggested in *Fl. Som.*, there must have been a mistake through confusion with *O. Hederæ*, which is always present on Brean Down; whereas *O. elatior* is unknown there and never occurs "plentifully" in any locality. By the roadside between Swainswick and Tadwick; on a bank near the Canal locks at Combe Hay; and in a lane leading from Weston to Lansdown; *Fl. Bathon*. Mr. J. G. Baker is reported to have found it near the last-mentioned locality in 1884.

I have never had the fortune to meet with this broom-rape in the district, and it will be seen that few of the published stations for it can now be vouched for. To my knowledge other species have been sometimes mistaken for this one.

**663. *O. Hederæ* Duby. Ivy Broom-rape.**

Native; parasitic on ivy; rather frequent but local. June and July.

**G.** On St. Vincent's Rocks in many places, especially along the upper edge of the cliffs. Under a wall on a roadside in Sneyd Park; persistent several years. Steep bank above the railway between Sea Mills and Shirehampton, 1881 to 1893. Clack Mill. Wall opposite Cornwallis Crescent, Clifton; *Swete, Fl.* (1854). Combe Dingle; *Misses Cundall*.

**S.** Leigh Woods; both on rock slopes and limestone walls. Ashton Manor Woods; *Miss Atwood* in *Swete, Fl.* Ivy-clad wall at Ham Green. On an old wall between Nailsea and Yatton; *J. H. Priestley*. Yatton; *Miss Winter*. Reported by many observers from Clevedon, where the plant appears to be well known about rockeries and garden walls in the town, as well as on the coast at Salhouse; *D. Fry*. Swallow Cliffs on Sand Point; *Mrs. Gregory*. Worlebury Camp, Weston-super-Mare; *Miss Roper*. Walls in Cheddar village and rocks of Cheddar Gorge; *J. G. Baker* in *Fl. Som.* Very rare on Cheddar Cliffs; *C. E. Moss*. Common on the south side of Brean Down.

**664. *O. minor* Sm. Lesser Broom-rape.**

Native; parasitic on a variety of herbaceous plants belonging to different natural orders, and especially frequent on *Leguminosæ*. Rather common, but not infesting the clover-fields of this district so extensively and destructively as it is said to do in some southern counties. June and July.

**G.** St. Vincent's Rocks; *E. Lees* in *New Bot. G.* Penpole; *G. H. K.*

*Thuaites*; and Clack Mill (still there, 1906; *Misses Cundall*) near Westbury; *H. O. Stephens* in *Swete, Fl.* On *Geranium rotundifolium* at Stapleton; *C. Bucknall*. On clover at the foot of a railway embankment near Coalpit Heath, July, 1905. Abundant in a clover-field above Wotton-under-Edge, 1901.

**S.** Several years in a cultivated field on Failand Hill, above the Tan-pits; *Misses Cundall*. Brislington. On clovers and hawkbits on Tickenham Hill, 1906. Portishead, several years; once on *Geranium columbinum*. Weston-in-Gordano; *Miss Worsley* in *New Bot. G.* (1835). Still there in 1905; and at Walton on *Nepeta glechoma*; *Miss Livett*. Walton by Clevedon, in profusion, 1882; *D. Fry*. Near Yatton; *Miss Winter*. Profusely on clover at Stanton Drew, 1887; *D. Fry*; and likewise profusely near Chew Magna in 1898; *Miss Roper*. Sandford Hill, 1888; *H. S. Thompson*. Shore near the Sanatorium at Weston-super-Mare, on *Lotus*, 1890. Uphill; *Fl. Som.* Brean Sands, on *Trifolium repens*. Brean Down, on *Salvia verbenaca* and on *Ononis arvensis*. On clover at Midsomer Norton, Ebbor and Wells; *Miss Livett*. Not uncommon in clover-fields; *Fl. Bathon*.

The Coalpit Heath plant was a much larger form than ordinary *O. minor*. It stood two feet or more high with a large bulbous base, and was rather plentiful. It accorded well with the form mentioned by Dr. Syme in *Engl. Bot.* as occurring in Surrey, Yorks and Berks, and deserving possibly a varietal name. Its corolla is more strongly curved, the curvature being greatest near the middle; the lips are longer in proportion, and the middle segment of the lower lip is conspicuously larger than the others.

**665. *O. amethystea* Thuill. *O. Eryngii* Duby. Bluish Broom-rape.**

Native; on sea cliffs and sands, parasitic on *Ononis*, *Daucus*, *Eryngium*, etc. Very rare and local; and difficult to distinguish from *O. minor*, unless compared in a fresh state. June and July.

**S.** Brean Down; on *Nepeta Glechoma*, June, 1879; *W. B. Waterfall* in *Fl. Som.* This was passed with some doubt by Mr. A. Bennett, but Waterfall was already acquainted with the plant near Plymouth. Brean Down, 1885; *Miss Livett* (her specimen named by Mr. F. Rawdon Smith). Sand-hills near Brean, 1882 (*vide* A. Bennett); *G. C. Druce*.

[***O. ramosa* L. *Phelipæa ramosa* C. A. Mey. Branched Broom-rape.**

Alien; said to have been introduced with hemp.

**G.** St. Philip's, Bristol; one plant in waste ground on vetches, June, 1905. About a dozen there in 1907, and as many in 1909, apparently on *Melilotus*.

**S.** Circa Glastonbury; *Huds. Fl. Angl.* ed. ii (1778).]

**LATHRÆA Linn.**

**666. *L. squamaria* L. Toothwort.**

Native; in woods and thickets, parasitic on the roots of hazel, elm, etc.; frequent. April and May.

**G.** Withy-bed, Bitton, 1908; *Miss Brookes*. Bank of the Boyd in the Golden Valley, Wyck, extending about 100 yards on elm and hazel, May, 1908;



*F. Samson.* Beach Wood by Battlefields, on the north slope of Lansdown at about 700 feet; quite close to the county boundary, 1908. Tortworth Park *W. E. Loxton.*

**S.** Leigh Woods; constant in several places, and noted there by many observers since the locality was published in *Shiercliff's Guide* for 1789. In plenty under a hedge on Failand, yearly since 1881. Abundant in Charlton Woods near Portbury. North side of the wood above Weston-in-Gordano. Norton's Wood near Clevedon; *D. Fry.* Between Dundry and Chew Magna. Outskirts of woodland at Cleeve; King's Wood near Yatton; and Col. Long's woods above Congresbury. Sidcot; *W. B. Waterfall.* Queen Wood near Axbridge; *H. S. Thompson.* On elm at Cheddar, 1906; *C. Wall.* Compton Martin Wood; *Rutter's Hist.* (1829). Still there and at Ubley; *Dr. Gough.* Lane above Rodney Stoke; *C. Bucknall.* Cranmore near Wells; *Miss Livett.* Little Elm; Mells Park; and Whatley Combe; *Fl. Som.* In a sunken lane near Fortnight. Plentiful in the Prior Park enclosures, where it was noticed prior to 1834. In addition to the two last localities near Bath, several others are mentioned in the *Fl. Bathon.*, viz., woods at Wolley, Smallcombe, and on Lansdown; and hedges on Claverton Down and at Englishcombe.

## SCROPHULARIACEÆ.

### VERBASCUM *Linn.*

**667. V. Thapsus** *L.* *Great Mullein. High-taper.*

Native; on banks, hillsides, old quarry ground and waste places; frequent. July to September.

**G.** St. Vincent's Rocks and Cook's Folly Wood; *Sweete, Fl.* On walls in Hampton Road and near the Black Boy Hill. Stoke Bishop. Sea Mills. Shirehampton. Glen Frome near Stapleton. Combe Down; sparingly. Thinly scattered among the Avonside Pennant quarries between Crew's Hole and Hanham Ferry. Downend. Winterbourne. Almondsbury. Tortworth. Wooded slopes near Cromhall Mill. Monk's Wood near Cold Ashton.

**S.** St. Anne's Park, Brislington. Abbotsleigh. Furzy hillsides, Failand. Railway banks between Bedminster and Bourton. Brockley Combe. Broadfield Down. Goblin Combe. Wrington. Hartcliff Rocks. Weston-in-Gordano. Walton Down. On several of the Clevedon hills. Sidcot. Axbridge. Cheddar. Weston-super-Mare. Brean Down. Wells. Chilcompton and Mells; *Fl. Som.* On high ground about Bath; *Fl. Bathon.* The Steep Holm; *Jno. Storrie.*

Probably the most striking herbaceous plant in the British flora; attaining a great size when in a favourable position. Three examples were reported in *Pharm. Journ.* 1905, as having reached the respective heights of 7 ft. 6 in., 8 feet, and 9 ft. 3 in. The latter produced leaves 26 in. long by 12 in. wide.

*V. Thapsus* produces an enormous quantity of seed. Many thousands must fail to reproduce the plant.

**668. *V. Lychnitis* L. *White Mullein*.**

Denizen or Casual; on walls, waysides and waste ground; very rare.

June to August.

**G.** Waste ground, St. Philip's, Bristol; about six plants in 1904, and at least as many in several succeeding seasons.

**S.** Worle; *Rutter's Hist.* (1829). Worle; *Miss Worsley in New Bot. G.* Formerly at Milton near Worle; *St. Brody, Fl. Weston*. Banwell; *Phytol., O.S.* On some old walls at Beckington, where it was recorded by Sole a century ago; *H. F. Parsons*. Lyncombe, and near the river at Bathford; *Dr. Davis in Fl. Bathon*. "Found by Dr. Davis and by no one else. Probably an escape from Mr. Haviland's botanic garden at Bathampton;"—*Jenyns' Lecture*, p. 59.

**669. *V. nigrum* L. *Dark or Black Mullein*.**

Native; on banks and roadsides; rare. Persistent only on oolitic hills to the north of this district.

July to September.

**G.** Casual on a colliery heap near Warmley, 1882. Durdham Down, 1849; Stapleton; and quarry on Aust Road; *Swete, Fl.* The last two localities are preceded by the asterisk which Swete employed to indicate that he could vouch for them "by inspection of the plant *in situ*." But at p. 101 he places *V. nigrum* in a list of species to be regarded as doubtful Bristol plants. Roadside between Ford and Marshfield; *C. E. Broome in Fl. Bathon. Suppl.* Marshfield; *W. A. Harford*. Western edge of Westridge Wood, Wotton-under-Edge. Under Stinchcombe Hill, rather plentifully. Dursley, 1846; *H. O. Stephens in Herb. Watson*. Woodmancote near Dursley; *Herb. Stephens*. Still there in 1905.

**S.** Weston Hill and Brean Down, not common; *St. Brody, Fl. Weston*. Waste ground by Church Road, Weston-super-Mare, 1879; *T. F. Perkins*. Not seen there since. Spontaneously in a garden at Bleadon, where it had not been cultivated; *H. S. Thompson*. One large plant in a lane by Combe Hay near Bath, 1887; *J. F. Hopkins*.

One of the most perplexing references to plants of this district among old authors is by Lobel, to something gathered by him at Bath. "*Verbascum nigrum salvifolium purpureo flore* . . . *Purpureum Erucae folium* . . . in mole templi diruti Bathonie Angle prope Thermas videre erat superiore anno."—*Advers. Nov.* pp. 241, 242. Ray (*Syn.* ed. 3, p. 288) quotes, "*Verbascum nigrum salvifolium luteo flore*; *Lob. Adv.* 241, 466. *Sage-leaved Black Mullein*." And Linneus (*Amoen. Acad.* iv, 98), in his little-known *Flora Anglica*, cites this as *Verbascum nigrum*. But it will be seen that Ray does not quote Lobel correctly; and, moreover, "*Purpureum Erucae folium*" is included in his *Indiculus Plantarum Dubiarum*. Lobel's description might possibly fit a *Salvia*: on the other hand the purple staminate hairs of *V. nigrum* may have suggested his title.



**670. V. Blattaria L. Moth-Mullein.**

Denizen or Casual; on walls, railway banks and waste ground; well established in a few places, sporadic in others. Rare, but more frequent than the other mulleins, *V. Thapsus* excepted. July to September.

**G.** On a wall bounding a footway by Granby Hill, Clifton, 1886-8. In the railway cutting east of Clifton Down Station, 1888 to the present day; and from time to time spontaneously in several gardens in that vicinity. A large and increasing colony (yellow-flowered) that flourished for seven or eight years on made ground in St. Philip's Marsh was destroyed in 1910. On the Port and Pier Railway near Black Rock, 1903 to 1909. "Apparently wild near Potter's Cottage at Combe, near Henbury, July, 1840;"—*Herb. Powell*. Still in Henbury Combe, 1887-8, when J. C. House showed me specimens, and 1909; *Miss Thompson*. Black Horse Hill, near Henbury; *Herb. Powell*. Kingsweston Down, 1911. Wotton-under-Edge. Dursley.

**S.** Bishport; *J. Ellis* in *Sweete, Fl.* Frequent by the G.W.R. near Brislington; a good many plants in some years along the cutting near Fox's Wood Quarries. Wall in Saltford village, 1902 to 1908. Corston; *D. Fry*. Portishead; *J. N. Duck* (1852). In Portishead Station-yard, 1904. On the down between Portishead and Walton, above Weston-in-Gordano; *Miss Livett*. Waste spot at Chelvey; *Miss Roper* and *Rev. E. Foord-Kelcey*. Fifteen or twenty plants there in 1904. Walls near Yatton; *Miss Winter*. Clevedon, several years; *Miss F. M. Ruddock*. Formerly at Milton; *St. Brody, Fl. Weston*. Between Milton and Worle, 1890; and at Kewstoke; *Mrs. Gregory*. Two plants on walls at Worle, towards Woodspring, 1884; *D. Fry*. On a railway embankment near Winscombe; *W. B. Waterfall*. Both the yellow, and also the less common creamy-white varieties were known there many years, even before the construction of the Cheddar Valley line, by Mr. F. A. Knight, of "Wintrath." Walls near Axbridge; *J. C. Melvill* in *Fl. Som.* Draycott; *Miss F. M. Ruddock* and *W. F. Miller*. Rough land near Uphill, 1881! *T. F. Perkins*. On walls about Wells, now and then for years; *Miss Livett*. On a wall at Ashcot, for many years; *H. S. Thompson*. St. Catherine's, near Bath, 1885; *C. E. Broome*.

**671. V. virgatum Stokes. Large-flowered Mullein.**

Alien or Casual; on waste ground. Very rare. July to September.

**G.** By the Corporation Electrical Works, St. Philip's, Bristol, 1904 to 1908. Colliery waste-heap (now levelled) at Mount Hill, Kingswood, 1884 to 1887. Filton; *Sweete, Fl.* and *Herb. Bristol Museum*. On a wall between Horfield and Westbury; *Dr. H. O. Stephens*. Two plants by the railway close to Mangotsfield Station, 1909! *F. Samson*.

**S.** Some fine plants in All Saints Churchyard, Weston-super-Mare, 1905; *Mrs. Gregory*. One on a wall at Congresbury, 1883; *Fl. Som.* With the last species near Uphill! *T. F. Perkins*. With the last also on the railway near Winscombe; *W. B. Waterfall*. Whatley, near Frome; *Rev. S. Laing*. St. Catherine's, in abundance; *T. B. Flower* in *Fl. Bathon. Suppl.*

**[V. blattarioides Lam.]**

Casual. St. Philip's Marsh, Bristol, 1909.]

**[V. phlomoides L.]**

Casual. St. Philip's Marsh, Bristol, 1907-9.]

**[V. Boerhavi L.]**

Casual. St. Philip's Marsh, Bristol, 1907-9.

Another plant gathered at the same time and place may be *V. Lydium* Boiss. which only differs from *V. Boerhavi* in "lana laxiore, foliis amplis tenuioribus, et capsulis minoribus."]

**[V. sinuatum L.]**

Casual. Plants probably belonging to this species, but less tomentose and with the radical leaves varying in form, occurred at St. Philip's Marsh in 1906-1909.]

**[V. speciosum Schrader.]**

Casual. St. Philip's Marsh, Bristol, 1909.]

**[V. Chaixii Villars.]**

Casual; but inclines to be more persistent than the other members of this remarkable group of introduced Mulleins.

**G. St. Philip's Marsh, Bristol, 1907-1911.**

**S.** Well established about some abandoned iron-works in Ashton Vale, Bedminster. When I first saw it five years ago there were six or eight plants. The number has since increased, although the handsome flowering stems are freely gathered by children of the neighbourhood.

By descriptions in British books this runs down easily to *V. virgatum*, with which, in consequence, I at first confused it; forgetting that when one has to deal with a suspected introduction it is advisable to take a much wider purview. I am indebted to Mr. A. Bruce Jackson for correction of the error (*Rep. Watson Erch. Club*, 1909-1910.)

**[V. phœniceum L.]**

Casual. A single plant with the last species in Ashton Vale, 1911! *C. Bucknall.*]

**[Erinus alpinus L.]**

Alien; an ornamental rockery-plant occasionally naturalized on old walls and, as a rule, persistent where it gets a hold, although now no longer found at the classic locality near Tanfield, Yorks. A native of mountain ranges in Central and Southern Europe, ascending to 7500 feet.

**G.** On the walls of Berkeley Castle, where it has been known many years. Formerly plentiful on walls at Moorend, north of Hambrook; but Mr. C. Alden tells me that little of it now remains. Old wall at Wyke; *E. H. Read*. Plentiful along the top of a high wall in Henbury village, for a hundred yards or so.

It has been suggested that in England this plant is found only in proximity to Roman remains; but it has long been cultivated in English gardens, and undoubtedly occurs as an escape in places having no connection with the Roman occupation.]

**DIGITALIS Linn.****672. D. purpurea L. Foxglove.**

Native; in open woodland and on hillsides and hedgebanks upon sandstone. Locally common. June and July.

The white-flowered plant has been noted by the G.W.R. near Brislington, and still grows on the cutting at Mangotsfield Station where it was sown many years ago. Mr. D. Fry found a few on Walton Down, Clevedon, amid a profusion of the ordinary colour.

Instances of change of form in the corolla, coming under the head of "regular peloria," are frequent with the foxglove, especially when cultivated. In these cases the terminal bud of the raceme develops a large campanulate flower of varying shape with double the usual number of shallow divisions to the corolla and eight or ten stamens instead of four. As is usual when a habitually irregular flower becomes regular, the change in form is associated with an alteration in direction, and the normally pendent foxglove flower becomes erect. A very remarkable feature of such peloric flowers is that they are



terminal, and yet reach their full expansion while the rest of the raceme is in bud, thus reversing the natural order of development. It has been suggested to me that abnormalities of this kind might result from a misdirection of food supply, and that the explanation is probably anatomical. These peloriated come true from seed.

The foxglove does not seem able to exist on limestone strata, and is therefore absent from large tracts about Bristol. But directly we pass to the Old Red Sandstone or Pennant the plant often appears in abundance, marking as with a flag the passage from one formation to the other. Such a transition is thus made known at Cook's Folly Wood, where the huge limestone mass of our Downs comes to an end; in the northern portion of Leigh Woods; and on Mendip about the lower slopes of Blackdown. I commend this object-lesson to the enthusiastic lovers of wild flowers who have lately urged, among other things, that the foxglove should be sown abundantly about our Rocks and Downs!

The medicinal value of foxglove was discovered by that distinguished botanist, Dr. William Withering, in 1775. A racy article by Dr. Gordon Sharp giving much information about the plant and its history was published in *Pharm. Journ.* 1908, p. 667.

### ANTIRRHINUM *Linn.*

#### 673. *A. majus* L. *Snapdragon.*

Alien; on rocks and old walls, often well established. Rather common.

July to September.

**G.** Established from time immemorial on St. Vincent's Rocks, and along the cliffs of the Great Quarry, whence it has spread of late years to the retaining wall of the riverside road below. Quite a feature of old walls on the slopes of Kingsdown above King Square; in Hampton Road; and some other of the older outskirts of the city. Westbury and Stapleton; *Swete, Fl.* On the walls of Berkeley Castle and Church, in rich profusion; *Withering, Arr.* (1796).

**S.** On several walls in Bedminster and Long Ashton. Backwell. Nailsea. Old quarry at Chelvey; *Rev. E. Foord-Kelcey.* Portbury; *Misses Hill and Peacock.* Rocks at Brean Down. Naturalized on old walls about Bath; *Fl. Bathon.*

#### 674. *A. Orontium* L. *Lesser Snapdragon.*

Colonist; a weed in cultivated ground; very rare. July to September.

**G.** Conham; *Miss Peck.* In 1906 Miss Peck wrote:—"Mr. Simonds, a Bath botanist, showed me the field at Conham Ferry where for three years I gathered specimens for the Bath Flower Show. The land was then cultivated, now it is grass; but the plant still grows on a grassy slope 200 yards or so away." Casual at Baptist Mills, 1911; *I. W. Evans.* Mentioned in an old list of Bristol plants, of date about 1830. I have no confirmation of the plant's occurrence on walls, as stated by Swete in *Fl. Brist.* p. 58. Its usual locality is in cornfields.

**S.** Field near Whitechurch, July, 1850; *J. H. Cundall*. Potato fields near Bath, very local; *T. B. Flower*. "A weed in the Park, having been originally sown there. It is sometimes found in cornfields, being introduced with the seed."—*Fl. Bathon*.

The variety or "sub-species" *A. calycinum* Lamark (*A. elegans* Tenore), a handsome, large-flowered annual, has occurred (1904-6) on the tips in St. Philip's Marsh, Bristol.

### LINARIA *Hill*.

#### 675. *L. Cymbalaria* *Mill.* *Ivy-leaved Toadflax*.

Alien or Denizen; chiefly on walls; very common. May to October.

I have notes of the beautiful white-flowered variety in Pitch and Pay lane, Stoke Bishop; at Westbury; at the Brislington end of Talbot Road and on many yards of a wall near Brislington Station; on Belmont Hill; in Compton Dando Churchyard; and on walls at Combe Hay. It is reported also from Mells by Dr. Parsons in *Fl. Som*.

This ornamental trailer on our old stone walls and brickwork affords a striking example of an alien species which has overrun the country in all directions—attaching itself to "almost every old wall" as Swete says—and become completely naturalized within quite a moderate space of time. For although the plant was well known to British herbalists so far back as the beginning of the seventeenth century, yet at that period it was largely confined to gardens, and grew naturally only in a few places in the North. It continued of comparatively rare occurrence until a more recent time; when, as Dr. Bromfield concludes (*Phytol.* III, p. 621), the taste for gardening became general among all classes, leading of course to a wide and rapid circulation of interesting plants among horticulturists, and correspondingly frequent opportunities for running wild on the part of so hardy and active a spreader as this *Cymbalaria*—"Mother of thousands" and "Mother of millions" as it has been aptly named by country people. From some published accounts one might be led to infer that the plant made its original escape from the Chelsea Botanic Garden about 1720; but the references by Gerard and Parkinson suffice to show that it grew in other places than gardens at a far more remote period.

#### 676. *L. Elatina* *Mill.* *Sharp-leaved Fluellin*.

Colonist; a weed of cultivated land; frequent. Often found in company with the next species. July to October.

**G.** Horfield; *T. B. Flower* in *Phytol.* (1840); and *Herb. Stephens*. Henbury and Charlton; *Herb. Powell*. Hallen. Fishponds. Bury Hill, above Moorend. Alveston. Earthcott. Almondsbury. Yate. Thornbury.

**S.** Bishport, 1840; *T. B. Flower*. Knowle, 1884. Cultivated land east of Yanley Lane; and in stubble-fields between the Bridgwater Road and Dundry, 1882 to 1900. Whitechurch; *E. H. Read*. Arable land between Keynsham and Stockwood. Field on Happerton Farm, near Easton-in-Gordano; *Miss Agnes Fry*. Walton-by-Clevedon; *D. Fry*. Oatfields at Clevedon!



*W. E. Green.* Kingston Seymour, 1883; *Mrs. Lainson.* Near Congresbury. On Mendip above Rodney Stoke. Hutton, not common; *St. Brody, Fl. Weston.* Easton, near Wells; *Miss Livett.* Near Whatley and Asham; *Rev. S. Laing.* Between Twerton and Englishcombe. Barrow Hill; Widcombe; Combe Down; and other places near Bath; *Fl. Bathon.*

**677. *L. spuria* Mill. Round-leaved Fluellin.**

Colonist; a weed of cultivation like the last, but rarer. July to October.

**G.** Cornfields at Horfield, 1840; *T. B. Flower*, and *G. H. K. Thwaites* in *Swete, Fl.* Henbury and Charlton; *Herb. Powell.* Cornfields between Filton and Charlton, 1849 and 1850; *J. H. Cundall.* Between Charlton and Patchway, 1883. Westbury-on-Trym. Lawrence Weston, in stubble-fields. Bridge Yate. Wyck; *Dr. Hassé.* Cornfields, Earhcott and Alveston. Chipping Sodbury.

**S.** Occasionally about Bedminster and Knowle; *J. F. Hopkins.* Bishopport, 1840; *T. B. Flower.* Cultivated land between Stockwood and Keynsham; *D. Fry.* With vetches by Featherbed Lane, Clutton; *D. Fry.* Walton- and Weston-in-Gordano. Rare at Weston-super-Mare; *St. Brody.* Milton fields, Wells, 1883; *Miss Livett.* Between Twerton and Englishcombe. In many cornfields about Bath, where it sometimes occurs in the peloria condition; *Fl. Bathon.* Near Whatley and Asham; *Rev. S. Laing.*

For an illustrated article on some morphological peculiarities of this species, dealing with the abnormal tendency of its irregular flowers to become regular, see *E. S. Magrath* in *Pop. Science Review*, Oct. 1864.

**678. *L. viscida* Moench. *L. minor.* Desf. Least Toadflax.**

Colonist; on cultivated and waste ground, with a peculiar fondness for railway ballast; frequent. June to September.

**G.** St. Vincent's Rocks; *Shiercliff's Guide* (1789). Constant on the Port and Pier Railway under the Downs. Westbury and Henbury; *Herb. Powell.* Conham; *Herb. Stephens.* Clifton turnpike; *Miss Atwood* in *Swete, Fl.* Cornfield between Horfield and Filton, 1888. Mangotsfield Station. Severn Road. Pilning. Coalpit Heath. Iron Acton. Cultivated fields on Breakheart Hill above Dursley. Wyck. Marshfield; *Fl. Bathon.*

**S.** Railway sidings at Ashton Gate; and along the Portishead line under Leigh Woods. Flax Bourton. On the G.W.R. main line at Brislington and Saltford; *D. Fry.* Keynsham. Yatton Station; *Miss Winter.* Clevedon; *D. Fry.* Hutton; *St. Brody.* Weston-super-Mare, since 1847. Brean Down. Cultivated fields above Draycott. Cheddar and Wells; *Miss Livett.* High-bridge Stations. On railway ballast at Hallatrow and Radstock. Weston near Bath. Cornfields at Claverton, Combe Down, and Wolley; *Fl. Bathon.*

**679. *L. purpurea* Mill. Purple Toadflax.**

Alien; naturalized on rocks, old walls and railway banks in many places. A garden escape which sows itself persistently in suitable situations.

July to September.

**G.** St. Vincent's Rocks. Railway bank under the Downs, since 1903. On walls in many places about Clifton and Bristol; notably in Hampton Road; Durdham Park; and at Montpelier. By the high road at Stapleton, for thirty years. A feature of the walls in Tockington village.

**S.** Beggar's Bush Lane, July, 1899; now lost; *Miss Roper*. Walls at Pill. Portbury; *Misses Hill and Peacock*. Clevedon, 1896; *S. T. Dunn*. "A rather recent introduction at Clevedon, I suppose; as I do not find it on old walls, but on those built within thirty years or so."—*Miss Livett*. By the railway near Saltford; and at Winscombe; *D. Fry*. Walls about Wells; *Miss Livett*. Bathampton Station; *Miss Peck*.

[*L. Pelisseriana* Mill.

An alien from the South of Europe, very rarely found in this country.

**S.** On a wall at Brislington; *Herb. Stephens*. Seen there many years later by Rev. W. H. Painter; and by myself in 1886.]

**680. L. repens** Mill. *L. striata* DC. *Striped or Creeping Toadflax*.

Alien probably with us; very doubtfully indigenous at one station and certainly casual at the others. Very rare. July to September.

**G.** Redland, *Worsley Cat.* in *New Bot. G.* (1835); and 1885; *W. E. Green*. Is included in a list of Bristol plants of date about 1830. Wapping Wharf, Bristol Harbour, 1911!

**S.** At Locking, 1847; *F. J. A. Hort* in *Phytol.* II, p. 1048. "The pale *Linaria* (*L. repens*) still flourishes in crannies of the lias walls near Locking Church."—*F. A. Knight* (1890). "Plentifully on an old wall in the village of Locking, where I should have considered it an escape; but I find the station quoted by Hort [*loc. cit.*] without question."—*Fl. Som.* (1896). Very curiously, in 1852, five years after his visit to the place, Mr. Hort withdrew his record for *L. repens* at Locking as an "absolute blunder." *Phytol.* IV, p. 642. Dundry, Oct. 1850; *Herb. Lawrence*. Roadside at Nailsea, 1841; *S. Freeman* in *Phytol.* I, p. 328. On the permanent way of the G.W.R. at Saltford, 1895; *C. Withers*. Wells; on a wall of the Bishop's Palace, 1887; *Miss Winter*. In two localities near Bath, 1892; *A. E. Burr*.

**681. L. vulgaris** Mill. *Common Yellow Toadflax*.

Native; on roadsides, dry waste ground and the borders of fields; common. I have occasionally noticed it to be abundant among crops, as at Churchill and Shipham. July to October.

[*L. italica* Trev.

**G.** Casual on waste ground in St. Philip's Marsh, Bristol; three or four plants in 1909! *Miss Roper*. A few in 1910.

These were not the hybrid *vulgari-repens*, but the true plant of Treviranus imported from the Orient. It appears to be of extremely rare occurrence in Britain: the only other instance I can find is described in the *Fl. of West Yorks*, where mention is made of its appearance near Leeds so far back as 1869.]

[*L. organifolia* Aiton.

Another most infrequent visitor, native in S.W. Europe, of which little or nothing can be learnt from British books. It was reported, some years ago, in the *Treasury Magazine*, to grow on Wells Cathedral; and Miss Livett endeavoured at the time to trace the statement to its source. But she could neither find the plant itself nor anyone who would own to having started the report concerning it.]



**SCROPHULARIA** Linn.**682. S. nodosa L.** *Knotted Figwort.*

Native; in damp shady places; common.

July to September.

[*S. umbrosa* *Dum.* *S. Ehrharti.* C. A. Stev.Has occurred once only as a casual near Twerton-on-Avon S. in 1897; *S. T. Dunn.* Unknown as a native in either Somerset or Gloucestershire.]**683. S. aquatica L.** *Water Figwort.*

Native; in wet places. Common and well distributed on suitable ground throughout the district.

July to September.

[*Limosella aquatica* L. *Mudwort.***G.** Is stated, on very doubtful authority, to have been found in a pond near Blaize Castle during an excursion of the British Association in September, 1836. (See *Myosurus.*) *Trans. Bot. Soc. Lond.* 1839, p. 26.**S.** Cart-ruts in splashy places about Highbridge; *Sole* in *Collinson's Hist.* (1791). There is no later record for North Somerset; but several of *Sole's* discoveries have turned up again after a very long interval, and I think it likely that the Mudwort may yet prove to be a Bristol plant.]**MELAMPYRUM** Linn.**684. M. pratense L.** *Cow-wheat.*

Native; in open woods and hillside thickets; frequent.

May to August.

**G.** Clifton Down, sparingly along the high bank of the Bridge Valley Road; noted there first by Miss Atwood in *Swete, Fl.*, p. 57. Plentiful on wooded slopes of the Gully. Blaize Castle Woods. Glen Frome near Stapleton. Woods along the Avon from Crew's Hole to Hanham Weir. Wyck. Wood above the Frome near Iron Acton. Bishop's Hill Wood, Wickwar! *F. Samson.* Westridge Wood, near Wotton-under-Edge.**S.** St. Anne's Wood, Brislington, May, 1849; *Herb. Cundall*; and *Swete, Fl.* Portishead Wood. Weston Big Wood. Woods above Tickenham; Weston-in-Gordano and Congresbury; *D. Fry.* Near Yatton. Hutton; *St. Brody.* Bushy slopes of Mendip near Cheddar, Draycott and Shipham. Asham Woods; *Fl. Som.* Claverton Woods; *Dr. H. Gibbes* in *Fl. Bathon.*The broad-leaved form (var. *latifolium* Sch. & Mart.) was gathered near Yatton in 1892 by Mrs. Gregory.[**M. sylvaticum** L., a plant of alpine woods apparently unknown south of Yorkshire, is stated in *Withering, Arr.* ed. iii (1796) to have been found by Swayne at Wyck, G., and the record was copied in the *Botanist's Guide* and *Fl. Bathon.* In *Journ. Bot.* 1889, p. 271, Mr. T. B. Flower says that he had repeatedly searched for this plant in the woods near Wyck without result, and had found no specimens in the herbaria of Withering or Smith. He concluded therefore that a mistake had been made. Mr. Flower himself, in his earlier years, had reported the same species in *Fl. Bathon. Suppl.* from woods at Hinton Abbey, S. Watson speaks of encountering the frequent error of giving the name *sylvaticum* to small examples of *pratense*, and there can be little doubt that the same thing happened in both these instances.]**MIMULUS** Linn.**685. M. Langsdorffii Donn.** *Yellow Monkey-flower.*

Alien, originally from North America. It has spread from gardens in this country, and now seems to be increasing rapidly in suitable positions on brook-sides and in marshes.

June to September.

**G.** In small quantity by a brook near Kingswood below Wotton-under-Edge. This stream was being kept too clean for the plant to increase much in quantity, 1905; *F. Samson*. A casual at Clifton in 1883.

**S.** Little Wood Pool, and Lipsey Lane, near Cleve; *Miss Winter*. For half a mile in a small stream on the Blagdon side of Blackdown, 1884; *E. H. Read*. I have seen it near Ellwick Farm in that vicinity. Abundant in a stream between Binegar and Chilcompton, 1898; *R. V. Sherring*.

This is *M. luteus* of British authors, but not of Linneus. The latter is a distinct species.

**VAR. guttatus DC.** (with dark red blotches on the corolla).

**S.** For quite a mile along a stream near Gurney Slade; *F. Samson*. It makes a fine show a short distance above the mill pool in Slade Bottom.

[**M. moschatus** Douglas. *Garden Musk*. Alien.

**S.** On the peat of Ashcot Heath, far from cultivation, 1909; *F. Samson*.]

### PEDICULARIS Linn.

#### 686. *P. palustris* L. *Lousewort*.

Native; on boggy peat and moor-land. Rare and local. June to August.

**G.** Filton Meads; *Swete, Fl.* Now lost.

**S.** Downhead Common, 1892! *D. Fry*. Boggy spring-head near the top of Blackdown on Mendip, 1884; *D. Fry*. I saw several plants there in 1896. Sparingly on Aller Moor near Wedmore; and abundant on the peat moors further south. [Claverton Wood; *Dr. Davis* in *Fl. Bathon*.]

#### 687. *P. sylvatica* L. *Red Rattle*.

Native; in moist heathy and hilly pastures; frequent. May to July.

**G.** Formerly plentiful among furze on Clifton and Durdham Downs, and on the south side of the Gully; but now very scarce. Hillsides in the Trym valley below Westbury, noted as the "Cherry Orchard" by Swete. Plentiful in Over Park. Boggy pasture near Hallen. Rodway Hill near Mangotsfield, in small quantity. Siston Common. Yate Common. Between Tortworth and Damery Bridge. Hilly pastures near Stone and Faldfield.

**S.** Abundant on furzy slopes near the Tan-pits, below Failand House. Brislington. Bishport; *Swete, Fl.* In the "Wild Country" near Barrow Gurney. Backwell Hill. Woodsides above Portbury. On the peat of the Walton valley. Walton Down, on the coast towards Clevedon. Mossy pasture near Cleve Toot. Tickenham; *W. E. Green*. Yatton; *Miss Winter*. Maesbury Camp; *Miss Roper*. Ubley; *Fl. Som.* Several plants with white flowers among many others on Blackdown and near Priddy. Peaty meadows by Max, Winscombe. Hillsides near Wells. Common on the peat moors. St. Catherine's, near Bath.



**RHINANTHUS** Linn.**688. R. Crista-galli** L. *Rattle Grass. Common Yellow Rattle.*

Native; in meadows and pastures; very common and well distributed.

May to July.

It is not unusual to find mowing pastures full of this weed, and I have sometimes thought it to be more abundant on lias and oolite than on other strata. But being parasitic on the roots of grasses it is largely independent of soil peculiarities; and can flourish in all kinds of situations, from the bare limestone hill to deep alluvium, or even peat-moor bog and marsh. In dry seasons it exhausts the vigour of a hay crop, and makes poor worn-out land look poorer still. The Board of Agriculture emphasizes the necessity of early mowing in order that the plant may be prevented from scattering its seeds.

**689. R. major** Ehrh.

Native or Colonist; on the peat moor. Very rare.

June to August.

**S.** "*Rhinanthus Crista-galli* var. *angustifolius*—(*R. major* of Smith and Babington). On the banks of the canal, and in other parts of the moor; *T. Clark*. A few plants were found near Shapwick Station, August, 1892, by the Rev. E. F. Linton."—*Fl. Som.* p. 255.

Mr. Linton mentions his gathering in *Journ. Bot.* 1909, p. 383, when recording the occurrence of a similar plant in Dorset, and continues:—"I cannot help wondering whether the common species of the meadows can be stimulated by growing in cultivated ground into simulating the much rarer *R. major*. The Continental plant is usually much more marked than the British specimens I have seen." In Yorkshire and Durham, however, and also in Scotland, *R. major* has been observed to spring up and recur for a few years in cultivated land newly reclaimed from peat moors.—*Fl. West Yorks.* p. 345. This experience seems to tally with the above observations made on our own peat moor. And the plant would naturally be more common formerly than now, when so little reclaimable land remains.

A writer on ecology, not long ago, described this as an abundant species, characteristic of dune marshes on the North Somerset coast. He has since told me that he feels sure the plant was merely a large form of *R. Crista-Galli*.

**EUPHRASIA** Linn.

A period has now been reached when it seems no longer allowable for a field-botanist to dismiss the Eye-brights of his district with a brief announcement that *Euphrasia officinalis* is "common and well distributed"; adding perhaps that "this is a variable or polymorphic species." True as such statements may be, they give no hint of the serious and careful work which has been done of late years in elucidating the genus;\* no clue to the results arrived at; and not a scrap of aid to the student who may wish to pry into the interior of these

\* See *Monograph of the British species of Euphrasia* by Frederick Townsend, M.A., F.L.S.

difficult botanical aggregates. Not all of us possess the discriminating faculty or power of appreciating minute differential characters, and those who do should certainly be helped wherever practicable, and not hampered in any attempt to add a few atoms to the general mass of knowledge. There exists, unfortunately, a too general disinclination for the study of critical groups.

We are at length compelled—whether willingly or unwillingly it matters not—to admit that the differing forms of *Euphrasia* are more or less stable, and some at any rate permanent enough to constitute and be recognizable as entities worthy of distinctive names. A certain number of these (species, sub-species, or varieties; call them what you please), as might be anticipated, are more strongly marked and show fewer variations than others. Locally it will be found that *borealis*, *brevipila*, *nemorosa* and *Rostkoviana* are among those most satisfactory to the student; while *curta* and *stricta* are decidedly uncertain and treacherous. Experience teaches that, in this investigation, it will not do to trust implicitly for guidance to descriptions or examples furnished by even the foremost authorities; although one would not under-value the help obtainable by reference. Nothing is so safe and so profitable as close perseverance in personal study and comparison of well-grown specimens.

The attempt here made to sketch the distribution of *Euphrasiæ* in the Bristol district is founded mainly on the work of my friend Mr. Cedric Bucknall during the past ten years. The kindness of the late Mr. F. Townsend, Monographer of the British species, was often drawn upon in consultation, both by ourselves and by one or two other participants in the task.

This list follows the order of the tenth edition of the *London Catalogue of British Plants*.

### 690. *E. Rostkoviana* Hayne.

**S.** Broadfield Down, towards Winford, 1898; *C. Bucknall*. Wavering Down and Crook's Peak; *Mrs. Gregory* and *C. Bucknall*. Burrington Combe; *Mrs. Gregory*. Rowberrow on Mendip. Cheddar. Downside Common, Edford. Abundant on the peat moors.

### 691. *E. brevipila* Burnat and Gremli.

**S.** Rough pastures by the golf links and near the Failand Inn; and in others above the Tan-pits, Failand, and on the Hill. Dundry. In mowing grass on Tining's Farm on Mendip; and towards Priddy. Pastures above Draycott, 1904. Emberrow and Eaker Hill; *Miss Roper*. Stoke Lane, Edford. Plentiful on the peat moors; and wrongly reported thence as *E. paludosa* Towns. (*E. scottica* Wettst.) in *Journ. Bot.* 1897, p. 125. St. Thomas' Head, Woodspring; very diminutive plants; *C. Bucknall*.

#### VAR. *subglandulosa* Towns.

**S.** An eglandular variety of *brevipila*, closely corresponding to Scotch specimens gathered by Mr. Townsend, has been found at Whitechurch by Miss Roper, and on a dry part of the peat moor near Shapwick Station.



**692. *E. Kernerii* Wettstein.**

**S.** Cheddar, Sept. 1853; *Rev. W. H. Purchas* in *Towns. Monogr.*, and Aug. 1900; *Mrs. Gregory*. In boggy ground on Rowberrow Down. Shipham Bottom. Sandy coast N. of Burnham, 1900; *Mrs. Gregory* fide *F. Townsend*.

**HYBR. *Kernerii* × *Rostkoviana*.**

**S.** Cheddar Gorge, 1900; *Mrs. Gregory*. Rowberrow Bottom, at the base of Blackdown; *C. Bucknall*. In both instances named by Mr. Townsend.

**693. *E. borealis* Towns.**

**G.** Open glade in Westridge Wood, above Wotton-under-Edge.

**S.** Coarse pasture near the Failand Inn! *C. Bucknall*. Barrow Hill, near the Jubilee Stone; on sandy ground in Kewstoke Bay; at Berrow; and on Lansdown; *Miss Roper*. Abundant over a small area on high ground above Cheddar.

**694. *E. stricta* Host.**

**G.** Wyck. Charfield. Roadside beyond Damery Bridge, 1900. Breakheart Hill above Dursley at 600 ft., 1902. Hill above Wotton-under-Edge at the like elevation; *C. Bucknall*.

**S.** By the roadside at Queen Charlton, 1901. Sides of cart-tracks in the woods between Cleeve and Congresbury. Worle Hill, and sandy waste near the Station at Weston-super-Mare, 1900; *Mrs. Gregory*. Peat moors along the railway between Edington and Shapwick Stations, 1900; *Mrs. Gregory* and *C. Bucknall*. Claverton Down near Bath.

**695. *E. nemorosa* H. de Martius.**

The commonest of the "species"; often of large growth and abundant in many places.

**G.** Blaize Castle domain; *Miss Roper*. Hill above Wotton-under-Edge, very fine plants.

**S.** Grassy roadsides between Providence and Tyntesfield. Stanton Drew. Cadbury Camp near Clevedon. Congresbury: specimens from a grassy slope under Col. Long's Woods were sent to Mr. Townsend by me in 1884 and were reported on as "typical." An Axbridge example is figured in the *Monograph*. Churchill. Cheddar. Berrow sand-dunes.

**HYBR. *nemorosa* × *borealis*.**

**S.** Rough pasture on Failand, with the parents; *Miss Roper*.

**696. *E. curta* Wettstein.**

**G.** On the hill above Wotton-under-Edge; *C. Bucknall*. Inglestone Common.

**S:** Markham Bottom; *C. Bucknall*. Eaker Hill; and Crox Bottom, Gurney Slade; *Miss Roper*.

**VAR. glabrescens** Wettst.

On many exposed downs and upland pastures in the district, as at Clifton, Lansdown, Uphill, Brean Down, Cheddar and elsewhere, there occurs a small plant which is decidedly intermediate between *memorosa* and *curta*, simulating the latter but practically glabrous = "*E. memorosa* ad *curtam* vergens" (Wettst.). Prof. Wettstein has named it **VAR. glabrescens**. The variety seems to make a convenient dust-bin for the reception of doubtful gatherings!

**HYBR. curta** × **Rostkoviana** = **E. Levieri** Wettst.

**S.** Rowberrow Bottom, at the base of Blackdown; *C. Bucknall*.

This was named by Mr. Townsend, who had not met with it before. He considered that if *Rostkoviana* and *curta* were present at the place, Mr. Bucknall's specimens must be the hybrid. The former was certainly at the spot, but we could find nothing to be referred to *curta*. It seems not unlikely that the latter had been nearly or entirely replaced by the hybrid, which is shortly pubescent as in typical *E. curta*, while the large flowers and some glandular hairs are indications of *Rostkoviana*.

A reported gathering of *E. occidentalis* Wettst. near Cheddar may have been this hybrid.

Nothing approaching *E. gracilis* Fries has yet been observed within our area.

The Eye-Brights flower throughout the summer months.

## ODONTITES Hall.

**697. O. rubra** Gilib. *Bartsia Odontites* Huds. *Red Bartsia*.

Native; in grassy wastes by roadsides, poor pastures, and cornfields; generally distributed. July and August.

As an aggregate this is largely made up of two forms which in their extreme states differ considerably; but there are many intermediates. *O. verna* has ascending straightish branches with leaves rounded below; and occurs chiefly on cultivated land; while in *O. serotina* the branches spread and curve upwards, and the leaves are narrowed below. The latter is the roadside plant, and with us is far more abundant than the other.

## VERONICA Linn.

**698. V. scutellata** L. *Marsh Speedwell*.

Native; in bogs, peaty ditches, and on the swampy margin of pools; rare.

July to September.

**G.** Siston Common; not in water, but in a shallow depression with *Ranunculus Flammula*; a good many plants in an area of two sq. yards, Aug. 1910! *The Misses Cundall*. "Bitton"; *Canon Ellacombe's list*. Edge of a pond



by Lyde Green, north of Shortwood, 1910 ! *C. Bucknall*. Among rushes on the margin of the Leechpool, north of Yate, 1910 !

There must have been something about the damp and gloomy summer of 1910 peculiarly favourable to the development of this species. Previously unknown to us on the Gloucestershire side of the district, it was discovered in three widely separated spots within a few weeks. The locality on Siston Common had been walked over many times in previous years, but perhaps most frequently in the earlier months.

**S.** Swampy woodland pond near the Manor House at Abbotsleigh ; pointed out to me in 1883 by Mr. H. Fisher. This pond was afterwards partially filled up with rubbish, but the plant is still there (1911). Near Yatton ; *Miss Winter* and *W. E. Green*. Clevedon ; in a wet ditch not far from the Court ; *Miss Ruddock* and *D. Fry*. Swamp among the sand-hills north of Burnham, 1888 ; *H. S. Thompson*. Frequent in bogs near the Mineries on Mendip, on the old red sandstone. Downside Common, Edford, 1900 ; *C. Bucknall*. Marsh at Oakford near the Rocks, Bath ; May, 1856 ; *Herb Flower*. Turf moors, Burtle, 1831 ; and near Edington Station, 1859 ; *Herb. Clark*. Still frequent on the peat.

#### 699. *V. Anagallis* L. *Water Speedwell*.

Native ; in water, frequent ; specially so in the alluvial lowlands and on the peat of the southern portion of our district. July to September.

**G.** Boiling Well, under Ashley Hill. In the stream at Combe Dingle. Filton Meads. Ponds on Charlton Common. St. Anne's Pool, Siston ; and Siston Brook. Siston Common. Warmley. Lyde Green. Sodbury Common. In the Boyd stream. By the Frome near Frampton Cotterell. Tortworth. By Sodam Mill, Cromhall.

**S.** St. Anne's, Brislington. Bedminster Meads. Barrow Gurney. Along the Chew valley near Pensford, Stanton Drew and Chew Magna ; *D. Fry*. Streamlet at Norton Hautville. Ditches near Portbury, Portishead, Tickenham and Clevedon. Pond near Woodspring Priory. Dune marsh near Berrow. Blue Bowl Lane, Compton Martin. Stoke Lane, Edford. Generally distributed on the marshlands from Yatton and Weston-super-Mare to Highbridge and Wells. Common on the peat moors. Frequent in wet places ; *Fl. Bathon*.

#### VAR. *anagalliformis* Boreau.

Has the upper part of the inflorescence clothed with glandular hairs.

**G.** Ditches by Lover's Lane in Hallen Marsh, 1910 ! *Miss Roper*.

The fruit of this plant is often metamorphosed by the attacks of a gall insect. The flowers are sometimes flesh-coloured ; rarely white or rose-tinted as observed in Berrow marsh by the Rev. E. S. Marshall.

#### 700. *V. Beccabunga* L. *Brook-lime*.

Native ; in ditches and streams. Very common ; showing itself in nearly every watery place. June to September.

**701. V. Chamædrys L.** *Germander Speedwell. Bird's-eye.*

Native; on hedgebanks, and in open woods and shaded bushy places; abundant nearly everywhere. May to July.

Formerly on Brandon Hill, now lost; *D. Fry*. A form with pale flowers (white with bluish veins) at Cheddar, and at Rowberrow on Mendip; *Miss Gregory*. With very pale lavender-coloured flowers near Chewton Mendip and Woolverton; *Fl. Som.*

**702. V. montana L.** *Mountain Speedwell.*

Native, in woods and damp shady spots; frequent. May to July.

**G.** Combe Dingle. Glen Frome, near Stapleton. Cook's Folly Wood. Blaize Castle woods; *Herb. Powell*; and still there. Woods between Patchway and Charlton. Shortwood, Pucklechurch; *Swayne in Withering* (1796); and *Stephens Cat.* (1835). Thornbury. Charfield. Wyck. Lower Woods, Wickwar.

**S.** St. Anne's Wood, Brislington. Knowle; and between that and Maes Knoll, in several spots. Stockwood Lane; *Swete, Fl.* Still there in 1908. Frequent about Failand. Coppice near Flax Bourton Station. Bourton Combe. Leigh Wood. Pill; *Miss Roper*. Charlton Woods, Portbury. Portishead; and the woodland above Weston-in-Gordano. Limeridge Wood near Tickenham. Col. Long's Woods, Congresbury; *D. Fry*. Stanton Drew; Bishop Sutton; and Nether Stowey. Plentiful on Stantonbury. East Harptree; *Herb. Lawrence*. Compton Martin; Ebbor; Gurney Slade; and Crocombe; *Fl. Som.* Hutton; *St. Brody*. Weston-super-Mare. Plentiful in woods near Wells; *Miss Livett*. Frequent about Bath; *Fl. Bathon*.

This is not a mountain species in any special degree, since it is quite as frequent on low ground as in elevated situations. The fitness of Linneus' specific name, therefore, is not evident until one has seen the plant fringing tracks through alpine pine woods at a high elevation.

**703. V. officinalis L.** *Common Speedwell.*

Native; on commons, heathy pastures and dry banks. Common in suitable localities, especially on the Mendips. June to September.

**704. V. hybrida L.** *Welsh Spiked Speedwell.*

Native; still abundant on the more inaccessible ledges of St. Vincent's Rocks, and occasionally straying on to the riverside masonry below. Absent from Somerset. June to August.

Although there appears to be no character of importance to separate *V. hybrida* from *V. spicata*, it is considered that our plants and those of the Welsh coast belong to the former, which is the larger and handsomer. There is a great difference in the stature of the two plants. The inland *spicata* of heathy ground at Newmarket, etc., is a slender little thing of from 4 to 6 inches, and not much bigger in cultivation; while our Clifton *hybrida* ranges from 12 to 18 inches and attains even two feet in a garden. I have not gathered *spicata* in England, but have noted in Dauphiny and Tyrol that the spike is more cylindric, the hue paler, and the individual flowers little more than half



the size of those with our *hybrida*. Many local botanists of a past generation were of opinion that both forms were to be found on the Rocks at Clifton; and they stand separately in Swete's *Fl. Brist.*

Judging from the Journal of Sir Joseph Banks it is probable that *V. hybrida* is more plentiful now than in his time, when quarrying ballast for the West Indian sugar ships had laid bare much of the cliff face. He writes:—"I found it sparingly on the Ledges of Rocks on my way down to Giant's Hole, June 19, 1767." Lightfoot's record on June 25, 1773, is in almost the same words. In later years the pathway followed by these visitors was entirely quarried away.

First British record:—"Veronica recta mas, Lob. . . . Found at Saint Vincent's Rocke by Master Goodyer."—*Johnson, Merc. Bot.* p. 36 (1641).

This is the most beautiful of the native Veronicas. In this country it attains with us its southern limit; and our plants are often as large again as those I have seen upon the Great Ormes Head. Very rarely it has white flowers.

The Editor of one of our natural history magazines, not long since, on receiving from a Bristol correspondent a specimen of this plant with a request for its name, gave answer that it was an alien escape from a garden and therefore unworthy of notice!

**705. *V. serpyllifolia* L. *Smooth Speedwell.***

Native; in damp pastures and roadside turf; very common.

May to September.

**706. *V. arvensis* L. *Wall Speedwell.***

Native; on dry waste ground, walls and cultivated land; very common.

April to July, or later.

[*V. triphyllos* L.

Dr. Stephens informed Mr. Flower that the record for this plant "about Stapleton Mill" (*Swete, Fl.* p. 55) was an error.]

**707. *V. agrestis* L. *Green Procumbent Speedwell.***

Native or Colonist. A somewhat common weed on cultivated land, but not so plentiful as the next species.

April to November.

**708. *V. didyma* Tenore. *V. polita* Fries. *Grey Procumbent Speedwell.***

Native or Colonist; on and under walls and in cultivated ground. Common and well distributed.

April to November.

This has not, hitherto, been generally regarded as a common plant; but it is doubtless one of those species which often escape attention and is really more frequent than records may imply. I find it to be widely diffused in both vice-counties.

**709. *V. Tournefortii* C. Gmel. *V. Buxbaumii* Ten. *Buxbaum's Speedwell.***

Colonist; in cultivated and waste land, very common.

February to November.

This is a comparatively recent introduction from the East, which has increased and spread with astonishing rapidity during the last few decades. Half a

century ago it was regarded as a rare and interesting casual, lately arrived with foreign seeds. Mr. Borrer first observed it at Henfield, Sussex, about the year 1820. In 1825 it appeared in Berkshire. The *Flora Bathoniensis* (1834) mentions it under the name of "*V. filiformis*" as "naturalized, having been cultivated in a garden." Mr. Flower spoke of it as rare about Bristol in 1840. Swete himself could not have seen a specimen: he gives two localities on the authority of Dr. Stephens.—*Fl. Brist.* p. 56. About that period the plant showed itself in districts so widely separate as the counties of Devon, Hereford, York, and Cork in Ireland. Then it speedily became diffused over the arable land of the country until at the present time there are few fields which are not plentifully sprinkled with this weed.

**710. *V. hederæfolia* L.** *Ivy-leaved Speedwell.*

Native or Colonist; a weed on waste and cultivated land; very common.

February to July.

## LABIATÆ.

### MENTHA Linn.

**711. *M. spicata* L.** *M. viridis* L. *Spear-Mint.*

Alien or Denizen; by roadsides and near water; very rare.

August and September.

**G.** Ashley; August, 1849; *Herb. Cundall*. Sparingly by the Avon at Conham in 1886. Among grass by the roadside at Bridge Yate, about a mile from Warmley Station, Sept. 1889; *D. Fry*. Still there in 1896, but not flowering. A large patch on made ground in St. Philip's, Bristol, 1910.

**S.** Cheddar, as an alien; *Dr. C. E. Moss*. By the roadside a short distance inland from Berrow village, not in flower, Sept. 1906; *Rev. E. S. Marshall*. South Stoke, August, 1851; *Herb. Jenyns*. "Sides of a stream in a meadow between South Stoke and Midford."—*Jenyns' Lecture on the Bath Flora*. Murdercombe near Mells; *H. F. Parsons* in *Fl. Som.* A good number of plants, now apparently wild but not flowering, on a streamside by a wood at Whatley; presumably some building or garden may formerly have existed on the spot, for several introduced species were near at hand, 1909; *Rev. S. Laing*. "I have found it spontaneous on a common between Glastonbury and Wells; and the plant which produced the specimen for my plate I brought home ten years ago from a wild habitat in the meadows four miles out of Bath, where it flourishes to this day in an old water-grip . . . It also grows in various places by the side of the Avon between Bath and Kelston."—*Sole, Mentha* (1798). Unmentioned in *Fl. Bathon.* (1834).

This has no claim to be indigenous anywhere in the British Isles, but is always derived from garden cultivation for culinary use. It is the cook's "Mint" for sauce, green peas, etc.



**712. *M. rotundifolia* Huds. *Round-leaved Mint.***

Denizen ; on hedgebanks, borders of fields, etc., usually a remnant of old herb gardens ; very rare. August and September.

**G.** Shirehampton ; *J. Etheridge* in *Swete, Fl.* Roadside between Westbury and Horfield ; *S. Freeman* in *Phytol.* 1841, p. 328. In a high meadow near Berkeley Castle ; *Sole*.

**S.** Chelwood ; *T. B. Flower* in *lit.* 1883. A good patch on a bank by the roadside near Chelwood Parsonage, 1887 ; likely to be an old introduction, and no doubt the same spot we have had mentioned by Mr. Flower ; *D. Fry*. On both sides of a hedge by the roadside at Portbury ; first gathered by me in August, 1881, and still there in a much reduced quantity. At this station the plant has had a bad time of late ; as on one side the ditch has been piped and filled in to make a path, and on the other bank the herbage is frequently cut back hard. In the hedgerow bounding a small croft, half a mile or less north of Shipham on Mendip. On the other side of the hedge lies a wide stretch of old mining-ground ; and in the croft an undefined mound may mark the ruin of a long-abandoned dwelling. Newton Park ; *Dr. Davis* in *Fl. Bathon*.

**713. *M. longifolia* Huds. *M. sylvestris* L. *Horse-Mint.***

Native or Denizen ; on river banks and damp waste ground ; rather rare. August and September.

**G.** In some plenty at one place on the Avon bank below Hanham Mills.

**S.** Sparingly in a wet place by the roadside at Portbury, Aug. 1881 ; since destroyed. Walton-in-Gordano, "where *Cyperus longus* grows" ; *Herb. Stephens*, and *Mrs. Lainson* in 1883 ; no longer there. A few plants on the right bank of the Chew near Bye Mills, between Stanton Drew and Pensford. A few on both banks of the Chew close to Publow Church ; and more abundantly lower down the river at intervals for a considerable distance, looking thoroughly native ; *D. Fry*. In profusion also by the Chew for a quarter of a mile at Compton Dando ; and some still lower down towards Chewton Keynsham. By a brook between Burnet and Compton Dando, and abundant on the edge of a withy-bed near the mill at Newton St. Loe ; *D. Fry*. Bank of Avon in Newton Mead opposite Kelston, Aug. 1849 ; *Herb. Flower*. Near Keynsham ; *Herb. Jenyns*. Plentiful near the bridge in Pennyquick Bottom ; *D. Fry*. Englishcombe ; *Miss Martin*. Waste places about Hinton Blewett ; and between Ashton Lodge and Tadwick (var. *villosa*) ; *Herb. Flower*. Shrowe, East Harptree ; *Herb. Lawrence*. Weston-super-Mare ; *St. Brody*. Near Berrow village, on a roadside green in small quantity (var. *nemorosa*) ; *Rev. E. S. Marshall*. Near Bath (var. *villosa* fide J. G. Baker) ; *T. F. Inman*. Midford ; *A. E. Burr*.

*Sole* writes that he found this mint "in most home closes, farmers' bartons, and such-like places." But in at least some of our localities at the present day the plant appears to be quite satisfactory as a native species.

**714. *M. piperita* L. *Pepper-Mint*.**

Denizen; on riverbanks and roadsides; very rare and not often persistent. Several of Sole's eighteenth century records were for his var. *vulgaris*, which may have been indigenous, as Syme says he never saw it in cultivation; but in recent times our plants have been mostly the cultivated form (*a. officinalis*) occurring near houses and doubtless usually a garden outcast.

August and September.

**G.** Near the river at Wyck, and in a damp place at Langridge (the latter possibly in Somerset); *Fl. Bathon*. (1834). By the Boyd at Wyck, 1883; *T. B. Flower*. Henbury Combe, Sept. 1846; *Herb. Powell*. Bank of Avon above Hanham, Sept. 1849; *Herb. Flower*.

**S.** Left bank of the Chew opposite Compton Dando, 1896 and subsequently! *D. Fry*. Wet place on a laneside at Woollard, with *M. hirsuta* and other indigenous species, 1887! now lost; *D. Fry*. Near Keynsham; *Herb. Jenyns*. Wet grassy waste by a roadside near Portbury, 1904! *Miss Roper*. Clevedon; *D. Fry*. By the Cheddar Water, Sept., 1851; *Herb. Lawrence*. Roadside near Nettlebridge; *Fl. Som*. By a canal east of Shapwick Station, 1857; *Herb. Clark*. "Between Wells and Glastonbury" and "In a swampy place near Lansdown called the Wells, being the spring-head of Lock's Brook; also by the side of the Avon in Newton Mead and in other places about Bath;" *Sole*.

Drainage, building and enclosure have long banished the plant from most of Sole's localities in the vicinity of Bath; but Mr. T. F. Inman had it in considerable quantity between Batheaston and Box, outside our district.

Mr. Fry's Clevedon plant was var. *vulgaris* Sole. The station for this rare and interesting variety has been most unfortunately destroyed by local improvements and alterations to the ground. That from Woollard appeared to be an intermediate between *officinalis* and *vulgaris*; having the elongated leaves of the former with the capitate spikes of the latter.

A very remarkable Mint, differing from any form of *M. piperita* hitherto described as British, was found by Mr. Fry on Worle Hill near Weston-super-Mare in October, 1884. This was of dwarf habit with numerous small ( $1\frac{1}{4}$  by  $\frac{3}{8}$  in.), narrow ovate-lanceolate sharply serrate leaves of rather thick and coarse texture, subglabrous above and hairy on the veins beneath; and spikes cylindric, short, slender and extremely dense in inflorescence. The corollas had fallen at the date of discovery. Although the glabrous peduncles and subglabrous calyces, hairy only on the teeth, would unquestionably place it under an aggregate *M. piperita*; yet in the opinion of Mr. Arthur Bennett, who kindly reported on it, the characters as a whole separated the plant from both the recognized British forms. A plant almost identical had been gathered by Mr. Beeby in Surrey. Probably this would be represented among the series of forms named by Continental botanists; but as it unluckily disappeared from Mr. Fry's locality shortly after he noticed it, and has not been detected elsewhere, he has been unable to pursue the investigation.

**715. *M. aquatica* L. *M. hirsuta* E.B. 447. *Hairy Water Mint*.  
*Capitate Mint*.**



Native ; on riverbanks and in marshes ; common. August, September.

I have a peculiarly handsome state of this species, with stalked axillary clusters and leaves subcordate below, from the disused coal canal between Radford and Camerton. It does not match either of the Mints differentiated in Boreau's *Flore du Centre*, but is possibly quite as well worthy of a name.

VAR. *denticulata* H. Braun = *M. denticulata* Strail.

**S.** Plentiful by the stream in Crox Bottom, Gurney Slade.

Much less hairy than the type. Leaves broadly oval, remarkably blunt, all subcordate at the base, feebly toothed.

The VAR. *subglabra* Baker, with leaves glabrous except on the principal veins beneath, has been several times reported.

**716. *M. citrata* Ehrh. *M. odorata* Sole. *M. aquatica* VAR. c. Lond. Cat. ed. 10. *Bergamot Mint*.**

Denizen. Extremely rare.

August, September.

**S.** On Mendip ; for fifty yards or so along a grassy roadside not far from Priddy Nine Barrows and the Miners' Arms, at an elevation of 850 ft. Discovered by the author in September, 1905. See *Journ. Bot.* 1906, p. 32.

The Mendip plant is practically glabrous throughout—corolla included—the calyx only being hairy on the upper portion ("glabra, calycibus tantum ciliatis"; Koch, *Syn.*) The flowers of the wild plant form an oval or oblong spike exactly as described by Grenier and Godron in the *Flore de France*, instead of a globular head as in *M. aquatica*. The foliage is purplish green, a darker tint than that of the last species, and when fresh exhales a sweet scent, recalling verberna or lemon-thyme, which is quite distinctive. In the wild state this plant appeared to have well-marked characters, and it seemed more fitting to give it a specific place as is done by Sole, Syme and many French authors, rather than leave it as a variety under *M. aquatica*, with which it has extremely little in common.

Mons. Briquet (*Les Labiées des Alpes Maritimes*, p. 73) puts *M. citrata* as a sub-species under *piperita*, with which he says *citrata* is united by a continuous series of intermediate forms ; *piperita* itself being stated to be a hybrid. Some support to this view of the French botanist is certainly afforded by my experience in cultivating the Mendip plant. After two years it loses, to a large extent, its Bergamot odour and develops that of Peppermint ; while the calyx characters and the inflorescence point in the same direction. If that view be correct the relations of such complex and uncertain hybrids must be very difficult to understand. Their variations will be infinite, and the puzzle they present is not simplified by the fact that, when cultivated, the progeny from stolons of an original root may revert towards one of the ancestors. I have known this to happen in the garden more than once, not only with Mints but also in the case of a Violet hybrid.

*M. citrata* is one of the rarest of the genus, and is probably not indigenous anywhere in Britain. It is recorded in *New Bot. G. Suppl.* from between Bridgwater and Street, Somerset, by the Rev. J. C. Collins.

[*M. pubescens* Willd.

VAR. a. *palustris* Sole. *Menthæ Brit.* tab. 6.

"It grows in old ditches at Glastonbury, Wedmore, Birtle and King's Sedgemoores, Somerset, plentifully."—*W. Sole*. "In Claverton Wood and at Wyck."—*Fl. Bathon.* Apparently extinct in the localities mentioned, but should still be searched for late in the season.

VAR. *hircina* Hull. = *M. piperita* VAR. *sylvestris* Sole. *Menthæ Brit.* tab. 24.

"At Lyncombe Spa, and other wet places about Bath."—*W. Sole*. This also is now unknown to us.]

717. *M. sativa* L. *Marsh Whorled Mint.*

Native; in wet places; frequent. By no means so common in the Bristol district as it is said to be in some counties; and is certainly much less generally diffused than *M. aquatica*. In the damp places where *M. sativa* might be expected to occur we often find *M. arvensis*. July to September.

G. Bank of Avon near Crew's Hole and Hanham Weir; some plants at the latter spot very near *subglabra* if not it. By the Frome between Stapleton and Frenchay, 1895. By the Boyd above Bitton Paper Mills. Ditchside between Henbury and Hallen. Peaty pasture between Stoke Gifford and Patchway. Charfield. Tortworth Park and Cromhall Mill. Alderley.

S. By the brook behind Long Ashton Church. Bank of Avon near Keynsham: a very robust form with calyx-teeth shorter than in ordinary *sativa*; *D. Fry*. In several spots along the course of the Chew between Publow and Chewton Keynsham. Damp roadside near Publow, on the way to Queen Charlton; *D. Fry*. Portbury. Moor ditches near Yatton. Marsh on the coast at Berrow. Rowberrow Bottom; and boggy spots about the lower slopes of Blackdown on Mendip. Peat moors near Shapwick and Catcott Burtle. Whatley near Frome! *Rev. S. Laing*.

VAR. *paludosa* Sole.

S. This form has been identified by Mr. J. G. Baker, Mr. D. Fry and myself at Weston near Bath; and on banks of the Chew at Compton Dando.

VAR. *subglabra* Baker.

G. By the Avon at Hanham.

S. Yatton, 1885! *D. Fry*.

718. *M. rubra* Smith. *Tall Red Mint.*

Native or Denizen; on ditchbanks and riversides; frequent and well distributed. July to September.

G. By the Avon at Crew's Hole; and on the same bank a short distance above Conham Ferry! first noticed by Mr. D. Fry in 1883. Streamside by the Black Mill, Bitton; in plenty 1896 and subsequently. Horfield; *Swete, Fl.* In several spots between Wotton-under-Edge and Nibley; very fine plants; *D. Fry*. Respecting these Mr. Fry remarked, "I am more than ever inclined to regard *M. rubra* as native in our district."

S. Bank of Avon under Leigh Woods! Bedminster; *Swete, Fl.* On the roadside near Portbury Station. Clevedon; *D. Fry*. By the Chew at Compton



Dando. Congresbury, in more than one place; *D. Fry*. Bank of the Water Co.'s reservoir at Litton, whence Mr. Fry had roots in cultivation. Abundant by the green lane in Rowberrow Bottom. In the upper part of Long Wood near Charterhouse-on-Mendip, a little way below the farmstead. By the old coal canal at Midford. In the Yeo, close to Compton Martin; *Dr. Gough*.

Referring to the Avonside *rubra* on the Gloucestershire bank, Mr. J. G. Baker, in his paper on English Mints (*Journ. Bot.* 1865, p. 249), says that T. B. Flower sent specimens to the Thirsk Botan. Exch. Club from Crew's Hole which bore just the same relation to the ordinary form that *paludosa* bears to typical *M. sativa*; but at the present time we find there only the type with upper leaves two or three times as long as the whorls. Mr. Baker called the Conham plant "good *rubra*."

*M. rubra* is said to sometimes approach forms of *M. sativa*; but that is not so in this district, where distinctions between the two species are always sharply defined. Our *rubra* is a big strong plant running to 4 or 5 feet high, almost glabrous, with conspicuous bright red flowers and dark purplish foliage. Its scent is coarse and disagreeable, very unlike that of the kindred species. I have never seen it in gardens about Bristol.

### 719. *M. gentilis* L. *Bushy Red Mint.*

Native or Denizen; by water; very rare.

August and September.

**G.** In the Frome valley near the second bridge, Stapleton; *H. O. Stephens* in *Sweete, Fl.*

**S.** Lane under Dundry towards Bishport, Sept. 1843; *G. H. K. Thwaites* in *Herb. Stephens*. Rough field between Corston and Saltford, 1889 to 1896! *D. Fry*. Probably now lost through changes in the cultivation. In Lock's Brook between Weston and Twerton [Bath]; *Sole* in *Smith's Fl. Brit.*

This Mint grows in some frequency near Plymouth, where Mr. Briggs noted its "sweet, aromatic scent."

"*M. gentilis* usually differs much from *M. rubra* by its humble branched growth; by the pure green of its leaves, and by the comparatively bluish tint of its flowers: the reddish tint of the stem, leaves and flowers of *M. rubra* being absent. In approximating forms, the coarse scent of *M. rubra* will (always?) distinguish them;" *Purchas* in *Fl. Heref.*

[*M. gracilis* Sm. VAR. *cardiaca* Baker. *The Basil* or *Cardiac Mint*.

Mr. D. Fry and I have remarked that we sometimes see in cultivation Mints described as British which we cannot find in a wild or spontaneous state. This one used to be extensively grown for its mild stimulating and antispasmodic properties, and it still has a place in cottage gardens at Stoke Gifford, etc. It is a pretty, bright-flowered plant, intermediate between *M. spicata* and *M. rubra*.]

### 720. *M. arvensis* L. *Corn Mint.*

Native; in cultivated ground and damp places; common and very variable.

July to September.

VAR. *agrestis* *Sole*, *Menthæ Brit.* p. 33.

**S.** "This mint grows in corn-fields about the Mendip Hills, Shepton Mallet, and Frome; and in neglected gardens in that part of Somersetshire abundantly;

and as the Corn Mint is found in the same fields and gardens in common with it, they certainly cannot be the same as some authors contend."—*W. Sole* (1798).

I have no example from this district, nor had the author of *Fl. Som.* The Rev. E. S. Marshall has lately sent me good specimens from Bossington in South Somerset.

VAR. *præcox* *Sole*, l.c. p. 31.

**S.** "It grows by the side of the river Avon near Bath in various places, and blows in the middle of June, which is at least a fortnight or three weeks sooner than any other."—*W. Sole* (1798). In an oatfield near Corston, 1889; *D. Fry*.

A very tall form of *M. arvensis*, probably the VAR. *Allionii* Boreau, was gathered by Mr. Fry in 1886 by the Avon above Keynsham.

The whole genus is more or less difficult and variable; befogged with a multitude of uncertain intermediate forms, as a result, doubtless, of complex hybridization to which the Mints are peculiarly prone.

## LYCOPUS *Linn.*

### 721. *L. europæus* *L.* *Water Horehound. Gipsy-wort.*

Native; on stream and ditch-banks, and damp ground in woods. Well distributed in the low-lying portions of the district, and almost too common to deserve an enumeration of localities. June to September.

**G.** Bank of Avon at intervals from the county boundary at Swineford down to Crew's Hole and the Feeder Canal: at one time even by the Floating Harbour, Hotwells, as recorded by Miss Atwood in *Swete, Fl.* Valley of the Frome in many spots. By the Bradley Brook. Beck's Pool, Frenchay. Baptist Mills and the Boiling Well. Henbury Brook. Hallen marshes. Marsh skirting the lower side of Siston Common. Swampy ground north of Shortwood. Lyde Green. Yate. Charfield. By Sodam Mill, Cromhall. Damery Bridge. Tortworth. Wickwar. Ditches at Nupdown near the Severn.

**S.** Of fine growth on the lower skirt of Leigh Woods. Ditchbanks in the flats below Portbury Church. Moor ditches of the lowlands near Nailsea, Tickenham, Yatton, Kenn and Clevedon. About Kingston Seymour, Lympsham, Berrow and Burnham. Common in the Cheddar valley and on the peat moors. Paulton. Hallatrow. Hinton Blewett. Banks of the canal and river; *Fl. Bathon*.

The second English name may not be very ancient or perhaps not long in general use, as it is not mentioned by Parkinson or Hill, and has no analogue in France. It refers to the use of a black stain from the root wherewith gipsies and charlatans might dye themselves, "the better to pass for Africans by their tanned looks and swarthy hides, to bubble the credulous and ignorant by the practice of magic and fortune-telling."—*Lyte*.



**SALVIA** *Linn.***722. S. Verbenaca L.** *Wild Sage. Wild English Clary.*

Native; on rough dry banks and rocky pastures, preferring limestone and oolite, and on sand-flats by the coast. Rather common locally, but absent from extensive areas. May to August.

**G.** St. Vincent's Rocks. Slopes above the Avon on Clifton and Durdham Downs. Sneyd Park. Limestone outcrop on Redland Hill. In several places about Combe Down, Blaize Castle, and elsewhere on high ground near Henbury and Westbury-on-Trym. Almondsbury. Alveston Common. Hillside above Tockington. Wyck Rocks. On the hills near Chipping Sodbury and Hawkesbury. Tortworth. Berkeley.

**S.** Near Keynsham, sparingly. Roadside banks and high ground between Portishead and Weston-in-Gordano. Abundant towards the bottom of Tickenham Hill, and on slopes above the Battleaxes Inn at Wraxall. Cadbury Camp. Clevedon, in many places. Banks under the woodland between Yatton and Congresbury. Worle Hill. Plentiful in sandy fields about Weston-super-Mare. Uphill. A conspicuous feature of rocky cuttings along the Cheddar Valley Railway at Axbridge, etc.; and on several of the lower slopes of Mendip. Sandy fields and waste ground at Burnham. Wells. Mells; *Fl. Som.* Roadsides, Midford. Common on dry banks on the hills; *Fl. Bathon.*

**[S. pratensis L.** *Meadow Clary.*

Is a native only in Kent and Oxfordshire. With us it occurs rarely as a casual of accidental introduction with foreign seeds.

**G.** In Withering's *Arrangement*, ed. iii (1796), Mr. Swayne records this plant "on Wick Cliffs, Gloucestershire." An error may have been made, as was concluded by the Rev. L. Jenyns (*Lecture on the Bath Flora*); and by Mr. Flower, who informed me that he found no specimen in Withering's herbarium. Quite possibly the record belongs to *S. Verbenaca*, which grows at Wyck but is not mentioned by Mr. Swayne. Whether correct or otherwise, Swayne's statement was copied into the *Botanist's Guide*, and appeared in successive lists of local plants for many years afterwards, including Dr. Stephens' *Catalogue* (1835), and the *Flora Bathoniensis*. Rather curiously, Dr. St. Brody's herbarium contains an example labelled "Wyck Cliffs, 1849"; but as has been already mentioned, St. Brody seems to have aimed at including in his collection every plant which at any time had been reported for the county of Gloucester, regardless of authority. Some years ago I saw a specimen, stated to have been gathered at the same locality, which was shown in a wild-flower competition at one of the Bath Flower Shows. The judges, however, had reason to suspect the exhibitor of a breach of faith.

On waste ground in St. Philip's Marsh, Bristol, 1909. Roadside at Cromhall; *V. R. Perkins*.

I remember to have seen a solitary plant in a field of sown grasses, but have no note respecting it. This is so conspicuously handsome a species, with bright blue flowers of an inch long, that it ought not to be confused with any other.]

**[S. sylvestris L.**

Alien. A weed from Southern Europe which is occasionally observed near docks and corn mills in this country.

**G.** On a colliery waste-heap (now levelled) between Kingswood and Hanham, 1880 to 1890. On the riverbank near Bitton, 1903; *D. Fry*. On city rubbish tipped in St. Philip's Marsh, Bristol, in small quantity yearly from 1902 to the present time.

**S.** One plant with vervain, succory, etc., on the West Hill, Wraxall, 1910.]

**[S. verticillata L.**

Alien. Widely distributed on the Continent, and occurring with us under the same conditions as the last, with which it often grows.

**G.** On the colliery waste-heap above described, and for the same period. Waste ground at St. Philip's, Bristol, 1898 and subsequently, nearly every year.

**S.** Field on the ridge above Weston-in-Gordano, 1910; *F. Samson*. By the railway at Fox's Wood sidings, Brislington, 1893. It may be there still, but investigation is difficult. Portbury Station, 1905; *C. Bucknall*. Portishead Station-yard, first noticed in 1900 and seen repeatedly since. Disused lias quarry near Twerton, 1897; *S. T. Dunn*. Still there in 1902 and 1904.]

ORIGANUM *Linn.*723. *O. vulgare* L. *Common Marjoram.*

Native; on bushy banks, roadsides on the hills, and upland limestone pastures; frequent in dry sunny places. June to September.

**G.** St. Vincent's Rocks. Clifton Down and about the Avonside quarries. Frequent on suitable ground near Westbury, Henbury and Kingsweston. With flesh-coloured flowers, nearly white, by Clack Mill on the Trym. Almondsbury. Alveston. Tockington. Tortworth. Wotton-under-Edge. Dursley. Berkeley.

**S.** Bank of Avon under Leigh Woods. In masses on the lower hill slopes about Wraxall and Stone Edge Batch. Clevedon, in many places. Hillsides between Pensford and Whitchurch. Rough ground on the wood borders near Wrinton, Cleeve and Congresbury. Abundant on Mendip above Axbridge, Cheddar and Draycott, and similarly near Wells: sometimes with white flowers=*VAR. albiflorum* Lej., as near Priddy Nine Barrows at 850 ft., and at Rowberrow. Banwell. Loxton. Near Weston-super-Mare on Worlebury Hill; about Worle; and on the Bleadon range at Hutton, etc. Hinton Blewett. Great Elm. On banks, frequent; *Fl. Bathon.*

*VAR. megastachyum* Link. = *O. prismaticum* Gaud.

This handsome form, with flowers in elongated, oblong, prismatic spikes, occurs on the southern rocks of Cheddar Gorge, and was first brought to my notice by the late Rev. Augustin Ley, who was well acquainted with the variety in Herefordshire.

THYMUS *Linn.*724. *T. Serpyllum* L. *Common or Creeping Thyme.*

Native; on dry rocky ground, hill pastures on limestone, and sandy banks, locally abundant. June to September.

Very variable in size and colour of the flowers, and in general hairiness, as well as in habit or degree of prostration. A plant found by me in the Gully, Durdham Down (possibly the *T. spathulatus* Opiz), is nearly white with hairs, while others have been met with which are practically glabrous.

Nine varieties of British Thyme are enumerated by Withering (*Arr. Br. Pl.* ed. iii, p. 537). One of them, a broad-leaved form, he found near "Okey Hole, Somerset." In Central Europe a far larger number of variations have been differentiated and named. These, of course, will not all occur in this country, but there are signs that our own list will be considerably extended before long.

725. *T. Chamædrys* L. *Larger Wild Thyme.*

Native; in the same kind of situation as the Common Thyme, but it seems to prefer less exposure. Apparently rare in the vicinity of Bristol; probably to some extent it has escaped recognition. I believe, however, that it cannot be nearly so common as it is said to be in some other parts of the country.

June to September.



**G.** On St. Vincent's Rocks, 1879; *G. C. Druce* in *Herb. Brit. Mus.*

**S.** Leigh Wood, 1868; *Rev. W. W. Spicer*. I got it also on Leigh Down in 1879 (the spot is now enclosed). Stone Edge Batch near Tickenham; *Miss Livett*. Cheddar Gorge, Shepton Mallet and Cranmore Hill "quite the prevalent thyme in this neighbourhood"; *Fl. Som.* Warleigh Common, on the Wilts border; *W. M. Rogers*.

Specimens of *T. ovatus* Miller, "the *T. Chamædrys* of English floras, but not of Fries," gathered at Uphill by Mr. G. C. Druce, were so named by Dr. Domin; and I have it from a warren on Wraxall Hill.

*T. Chamædrys* is not mentioned in the *Fl. Bathon*; nor by Swete save as a plant to be looked for (*Fl. Brist.* p. 102). Still Dr. Stephens foresaw that it would be found in the district "on closer inspection." His remark shows that he had looked for it.

### CLINPODIUM *Linn.* (*Calamintha* Moench.)

**726. C. Nepeta** *O. Kuntze.* *Cal. parviflora* Lamark. *Lesser Calamint.* Native; extremely rare or possibly extinct. I have never met with it.

June to September.

**G.** Clifton; *Miss Atwood* in *Swete, Fl.* p. 61. Redland; *H. O. Stephens*; *ibid.* St. Vincent's Rocks; *T. B. Flower*. Blaize Castle Woods near Bristol, Sept. 1864; *J. Windsor* in *Herb. Brit. Mus.* [Penpole Hill, Kingsweston, Sept. 1844; *Dr. J. Forbes Young* in *Herb. Watson.*] In *Topogr. Bot. C. Nepeta* is cited for West Gloucestershire on the evidence of a specimen from Dr. Thwaites collected within ten miles of Bristol.

There are no Bristol examples in the Stephens herbarium nor in that of Flower. Regarding the other records, the Rev. H. J. Riddelsdell was kind enough to look up the specimens. He reported the one from Blaize Castle to be correct; while that from Penpole in *Herb. Watson* was *C. officinalis*, "though H. C. Watson never detected the fact." The record for Clifton rocks in *Science Gossip*, 1888, p. 259, may be disregarded on account of obvious errors that accompany the relation.

It is clear that the plant has grown in this district, although now no longer to be found. The nearest station for it known to me is near Chepstow in the Wye valley. In this neighbourhood *C. officinalis* is being constantly mistaken for the rarer species: the reason being, I suppose, that the descriptive characters, read in books, are comparatively ineffective until one has seen the true plant. To grasp the described differences between the two (they are really very distinct) it is almost necessary to have specimens of each in hand.

**727. C. Calamintha** *O. Kuntze.* *Cal. officinalis* Moench. *Cal. menthifolia* Host. *Common Calamint.*

Native; on warm rocky banks and sunny wood borders; frequent.

July to September.

**G.** St. Vincent's Rocks and the abandoned quarries under the Downs. Riverside bank a short distance above Sea Mills. Penpole Point. Glen

Frome, near Stapleton and Frenchay. By the Avon above Bristol at Crew's Hole and Conham. Laneside between Mangotsfield and the Sodbury Road. Almondsbury Hill. Hedgebank on the Gloucester Road between Rudgeway and Alveston Church. Thornbury. Exposed rock facing south at Itchington. Cromhall. Dursley.

**S.** Plentiful in some years by the Avon under Leigh Woods. By the Fortishead Road on the descent from Abbotsleigh; usually fine and plentiful. Roadside between Stanton Drew and Pensford; *D. Fry*. Stowey. Banks and waysides on Wraxall Hill. Weston- and Walton-in-Gordano. Clevedon, on several of the hills; *D. Fry*. Woodspring. Worlebury Hill, Weston-super-Mare. Lanesides on Banwell Hill, Christon and Loxton. Purn Hill, Bleadon. Uphill. Abundant on Brean Down. Burrington; *Fl. Som.* Often noticed about the Mendips near Axbridge, Cheddar, Draycott, Sidecot, Shipham, Ebbor, Wookey and Wells. Mells. Great Elm. Not uncommon on dry banks; *Fl. Bathon*.

**VAR. Briggsii** *Syme.*

With long-stalked cymes: peduncles of the lower verticillasters being sometimes an inch and a half long, longer than pedicels of the central flowers.

**S.** Among long herbage by the Avon under Leigh Woods. Base of the Court Hill, Clevedon.

Examples were submitted to Mr. Briggs, who confirmed the name but remarked that, in his opinion, the form was of small importance and scarcely worth separating, however much in its extreme state it might appear to differ from the type. "It graduates insensibly into the typical plant, and the intermediate forms are frequent."—*Fl. Plymouth*. To me also the Bristol plant seemed a luxuriant product of shade and moisture; but that impression is not common to all botanists. The Rev. E. S. Marshall tells me that in South Somerset he finds *Briggsii* in very dry spots and in the open, as well as in shady lanes; and he does not suppose that shade and moisture could cause the increased hairiness and altered tint of the corolla which he observes in the variety. He assumes, as does Mr. Murray in *Fl. Som.*, that *C. adscendens* Jord. is synonymous. Yet if Mr. Marshall's dry-ground plant, with the additional characters above mentioned, answers to Jordan's "species" and remains unaltered in cultivation as he asserts, it may well prove to be recognizably different from the Plymouth and Bristol *Briggsii*. In any case *Briggsii* and *adscendens* cannot be more than shades of a variation.

**728. C. Acinos** *O. Kuntze. Cal. arvensis* Lamark. *Common Basil Thyme.*

Native; on limestone rock and rubble, rarely in cultivated ground; locally frequent. June to September.

**G.** St. Vincent's Rocks, Clifton Down, and the quarries, etc., beneath the Downs. Plentiful on a wall in Sea Walls Road, Sneyd Park, 1906. In a cultivation near Kingswood. Wyck Cliffs; *Swayne* in *Withering* (1796). Still there at the present time. Blaize Castle rocks. High ground above Tytherington; *Miss Roper*.



**S.** On rubbly slopes under Leigh Woods. Usually abundant about a lime quarry by Failand golf links. Backwell Hill and Chelvey Batch. Barrow Hill. Portishead. Weston-in-Gordano. Hills at Walton and at Clevedon. Worle Hill. Hutton Combe; *Mrs. Gregory*. Loxton. Crook's Peak; *H. S. Thompson*. Uphill. At many points along the Mendip range; as Burrington Combe, Dolebury, Axbridge, Cheddar and Emborrow. Between Wellow and Hinton; *Fl. Som.* Holwell and Whatley; *Rev. S. Laing*. On dry banks at Combe Down, etc.; *Fl. Bathon*.

**729. C. vulgare** *L. Cal. Clinopodium* Benth. *Wild Basil*.

Native; on hedgebanks, roadsides and bushy places; common and abundant.

July to September.

With white flowers by the roadside on Rush Hill near Farrington Gurney.

**MELISSA** *Linn.*

**730. M. officinalis** *L. Common Balm*.

Alien; a relic of cultivation; on banks and roadsides, usually near houses. Rather rare and seldom of long endurance.

July to September.

**G.** By the railway station under St. Vincent's Rocks 1881-1884. Three or four plants under a wall of St. Mary's, Tyndall's Park, 1906. Bridge Yate, 1880. Several plants in a lane on Ivory Hill near Coalpit Heath, 1905-1908; *Misses Cundall*. Two on waste ground near Stapleton Road, 1911! *Mrs. Sandwith*.

**S.** A clump of a yard or more across at the Leigh Road end of Beggar's Bush Lane, 1909-1911! *Misses Cundall*. By the roadside at Flax Bourton, 1883; *W. E. Green*. Roadside towards Flax Bourton, 1911! *Mrs. Sandwith*. About twenty plants under a hedge near the keeper's lodge in Charlton Woods, and some by a cottage near the top of Failand Hill, 1909; *Misses Hill and Peacock*. One on an old wall at Saltford, 1905. In the corner of a field at Pill, 1881! *Dr. Burder*. Portishead Station-yard, 1908; *Miss Roper*. Well established at Clevedon; *Miss Livett* and *D. Fry*. A large plant near the canal at Radford, 1895. Wood at Weston-super-Mare; *Mrs. Gregory*. Hill-side near the cliffs, Cheddar, Aug. 1853; *Herb. Lawrence*. Wookey Hole near Wells; *Miss Livett*. Under a roadside wall near the Swan Inn, Dunkerton, 1910. By farm buildings at Studley Hill near Shepton Mallet, 1910; *Miss Roper*.

[*Sideritis montana* *L.* Alien; from Southern Europe. Now often noticed in this country as a grain introduction.—*Dunn*. An attractive little Labiate, with small bright yellow flowers deeply sunk in the larger calyces.

**G.** Wapping Wharf, Bristol Harbour, 1911! *Miss Roper*.

**S.** In some quantity on the West Hill, Wraxall, with other foreigners. Forwarded to me (1910) by Miss Agnes Fry and J. W. Eves.]

**SCUTELLARIA** *Linn.*

**731. S. galericulata** *L. Common Skull-cap*.

Native; on ditchbanks and in marshes. Rather common, but nowhere abundant, save on the southern peat moors.

July to September.

**G.** Glen Frome, June, 1849, and Sept., 1850; *J. H. Cundall*. Banks of the Frome; *H. O. Stephens* in *Swete, Fl.* Not reported thence of late. Wet spot in Berwick Wood near Hallen, 1883. Lovers' Lane, Hallen! 1909; *Miss Thompson*. By the railway between Avonmouth and New Passage; *F. Samson*. Bank of Avon at Conham. By the Bradley Brook near Winterbourne. In plenty by the Boyd, east of Pucklechurch. In Bitton withy-bed behind the Paper Mill. The Leechpool. Near the mill at Frampton Cotterell; *Miss Cockle*. Near Yate Court. Along a shaded bank of the Old Splott Rhine, between Ingst and Aust, in unusual quantity. Thornbury. Hall End. By the lake in Tortworth Park. Dursley.

**S.** Bank of Avon below Bristol; a few plants near Rownham Ferry and by the riverside footpath lower down for many years past. Marsh between Leigh Woods and Ham Green, at the outlet of Markham Bottom; *Miss Atwood* in *Swete, Fl.* and still there. Keynsham, between cobble-stones at the Brass Mills. Streamside under Failand Hill. Here and there throughout the marshlands near Nailsea, Yatton, Tickenham and Clevedon. In the Walton valley on Clapton Moor, etc. Kingston Seymour; *D. Fry*. Woodspring. Ditchbanks about Max bog near Winscombe. Dune marsh at Berrow. Burnham. Easton Moor near Wells; *Miss Livett*. Plentiful on the peat moors of Aller, Burtle, Shapwick, etc. On the banks of the Avon and canal; *Fl. Bathon*.

**732. S. minor** *Huds. Lesser Skull-cap.*

Native; on the swampy margin of peaty pools and bogs. Very rare and local. July to September.

**G.** Lovers' Lane, Hallen; *Miss Thompson*. I have not seen a specimen. Small boggy spring-head near Mangotsfield; one plant in 1905 and one again in 1906; then none until 1910, when a single specimen once more appeared and soon vanished. Some time elapsed before I learnt that these single specimens had been gathered by persons quite ignorant of their value. Yate Common; two plants on the border of moist woodland! *Miss Jacques*. And a fair number in several boggy runnels thereabout! *Misses Cundall*. Damery, scarce; *V. R. Perkins* and *W. E. Loxton*.

**S.** Edge of a small woodland pool less than a mile from Abbotsleigh; some two dozen plants yearly. Sparingly in other damp spots of the same woodland, the whole extent of the locality being nearly half a mile. Bog on the top of Blackdown above Tining's Farm. In a bog on the slope of Blackdown facing Dolebury; *Miss Roper*. Bogs and peaty ground near the Mineries north of Wells, over a considerable area. Abundant about Beacon Hill, and on Downhead Common. "Banks of the Avon"; *Dr. Davis* in *Fl. Bathon*. Very probably an error.

**PRUNELLA** *Linn.*

**733. P. vulgaris** *L. Self-heal.*

Native; in most pastures and turfy places; very common. July to September.



The white-flowered form with pale foliage (permanent) has been noted (G.) in a peaty field near Filton, 1852; *Herb. Cundall*; near Siston; *Misses Cundall*; near Patchway and between that place and Over; by Oldbury Court on the left bank of the Frome; *Miss Roper*; on Tytherington Hill; and on hillsides above Hillsley; and (S.) in the short turf of the coast downs between Clevedon and Walton Bay; and in Greyfield Wood, Hallatrow. The corolla in this variation is snow-white, never cream-coloured as with the next species.

### 734. *P. laciniata* L.

Native; on upland limestone pastures of the Mendip Hills at 550-600 ft. with a south-west exposure; very rare. June to August.

First described as a British plant by the author in *Journ. Bot.* 1906, p. 365, where full particulars of this interesting addition to the flora of the country will be found. It is now known to grow in at least five English counties, but seems not to be abundant in any of the localities.

According to Nyman the distribution of *P. laciniata* has included the whole of Europe excepting Britain, Scandinavia, Northern Germany, and Central and Northern Russia. The species is said to grow on dry calcareous hills—rarely, if ever, on other soil—and to be much less common than *P. vulgaris*. The older botanists and herbalists—Lobel, Bauhin, Clusius, etc.—evidently knew it well as a native of France and Germany. The woodcut in Parkinson makes a very fair figure, and the Jacquin tab. is most admirable.

There appears to be no doubt that we must call our plant *P. laciniata* L., as is done by Nyman, and by the editors of Koch's *Synopsis*, ed. iii.; although, in its literal meaning, the name is applicable only to the form with divided leaves. Linneus, in *Sp. Pl.* ed. i (1753), has "*P. vulgaris*  $\gamma$  *laciniata*," of which he says, "Tam multa habet in fructificatione communia, ut vix videatur distincta." In ed. ii, 837 (1763) he raises it to the rank of a species, but writes, "Fructificatio omnino *P. vulgaris* a qua olim orta; structura hodie persistens; adeoque tantillum distincta." The arrangement by Grenier and Godron under *P. alba* Pallas, which was adopted also by Willkomm and Lange in the *Flora Hispanica*, if inadmissible, was certainly convenient. Some of my specimens have their leaves entire save for two teeth at the base of each upper one, and so correspond to a *integrifolia* Godr.; whilst in others the stem-leaves are deeply pinnatifid, with narrow segments, thus agreeing with  $\beta$  *pinnatifida* Koch.

Since my account was published, Mrs. Gregory, who is familiar with *P. laciniata* on the Mendips, has found growing with the type a small patch of plants bearing bluish-purple flowers which do not show the least difference in structural characters. Although frequent with the common Self-heal, a colour variation with *laciniata* appears to be quite rare. Gremlí (*Fl. der Schweiz*), and Koch (*Syn.* ed. 3.), assume that flowers of the latter are always cream-coloured; but Grenier and Godron (*Flore de France*) say that they may be "rarement purpurines." Mr. Bucknall possesses some fine specimens of this colour-sport gathered at 600 mètres in Liguria by Mr. Clarence Bicknell. These are labelled "*Brunella intermedia* Link, = *B. vulgaris*  $\times$  *laciniata*." I



P.Highley lith.

*Prunella laciniata* L.

West, Newman imp.





see in them pure *P. laciniata* without trace of hybridity, and decidedly no "intermediate" in a structural sense.

The flowering of this species is practically over by the end of July, but secondary shoots develop later from axils of leaves towards the base of the withered stems, and these bear flowers as late as the beginning of November in a mild autumn. Their leaves are commonly undivided, as are usually the lower leaves of the plant from the axils of which the shoots spring.

Touching the difference in spelling the generic name (*Prunella* versus *Brunella*), exemplified above; Turner in 1568 (*Herbal*, iii, p. 60) gave reasons why this genus should be *Brunella* and not *Prunella* "as some of the Germans evelfavoredly call it." The Germans, however, must have afterwards repented and repaired their error: it is English folk now who are so evil-favoured as to write *Prunella*!

### NEPETA Linn.

#### 735. *N. Cataria* L. *Cat Mint*.

Native or Denizen; on limestone hills, hedgebanks and waste heaps; probably indigenous on the former, but with a marked partiality for the latter. Rather rare. August to November.

**G.** Among rocks and hollows at the side of Penpole Point; first noticed there by Dr. Thwaites (*Swete, Fl.*, p. 63) and still plentiful at times. Henbury; *Dr. H. O. Stephens*. Kingsweston Down, 1907; *Miss Roper*. Almondsbury Hill, Aug. 1839; *Herb. Powell*. One fine plant on an old dust-heap by the Avon in Bitton parish, 1894; increased subsequently to a yearly crop of several hundred plants on that congenial site. On the rubbish-tip at Bitton Paper Mills, 1908. Wyck Cliffs; *Swayne* in *Withering*.

**S.** Tickenham Hill; for some yards on a roadside bank, 1909. Cadbury Camp and Weston-in-Gordano; *D. Fry*. A fine clump occasionally in Portishead Station-yard. In a side lane on the road from Keynsham to Chewton Keynsham, six large plants in 1902; *D. Fry*. Still there in 1909. Lane between Ursleigh Hill and Compton Dando, abundant in 1904; *id.* Three plants by the side of the road from Chelwood to Stanton Wick, 1887; *id.* Axbridge, Oct. 1852; *Herb. Lawrence*. Grows in sand at Kewstoke and on Sand Point; *St. Brody, Fl. Weston* (1856). I saw it there at the root of Sand Point in 1880 and 1881. And Mr. Painter got it there also in 1884. Weston-super-Mare, 1847; *F. J. A. Hort* in *Phytol.* II, p. 1048. Lane leading from Midford to Combe Hay; *L. Blomefield*. Several plants in a lane at Combe Hay, 1886; *A. E. Burr*. Waste ground near Twerton; and on a hedgebank between Twerton and Englishcombe, year after year; *Miss Peck*. Near Cottage Crescent; *Fl. Bathon*. Peat moor at Edington Drove, 1852 and 1856; *Herb. Clark*.

#### 736. *N. Glechoma* Benth. *Ground Ivy*.

Native; on hedgebanks, woodland, and field borders; abundant and generally distributed. Is not restricted to shade and shelter, but does well on



exposed hillsides (Lansdown, Mendips, etc.). On such dry open ground the stems and leaves are short and small; while the flowers, being brought closer together, appear larger and more numerous in proportion, greatly increasing the beauty of the plant.

April to June.

A form with pinkish-white flowers marked with red is on the high ground by Blaize Castle.

**VAR. *parviflora* Benth.**

Differs from the type by its much smaller flowers, the corolla tube only equalling the calyx; the smaller and more acute calyx-teeth; and subglabrous foliage with more deeply incised teeth. The flowers are often functionally unisexual on account of abortive anthers.

**G.** In plenty along a field path through cultivated land between Brentry Road, Fishponds and the Frome. On a roadside wall at Moored.

**S.** Garden weed at Corston, well marked in 1894; *D. Fry*.

This variety has been made an especial butt for ridicule or contempt as "a pretty poor thing," "a mere condition" and so on, justifiably perhaps; but it has plenty of equally sad company from which selections could have been made to face some of the shafts. The *Lond. Cat.* gives it the go-by; and one writer artlessly says that "as *forma parviflora* it is often taken for a variety when no large corollas are present."

**LAMIUM Linn.**

**737. *L. amplexicaule* L. Henbit Dead-nettle.**

Colonist; under walls and on cultivated land; rather rare.

March to September.

**G.** Always present about Trooper's Hill, Crew's Hole and Conham, by waysides and in the cultivations. Stapleton; *Dr. Stephens* in *Swete, Fl.* Under a wall by Winterbourne Church, and on arable land towards the village, 1905 to 1909. Railway bank at Iron Acton. Roadside between Iron Acton and Rangeworthy. Near Alderley.

**S.** Keynsham; *Herb. Stephens*. Under walls at Corston and Saltford, and between Saltford and Keynsham; *D. Fry*. Near Cadbury Camp, and in several places at Clevedon. Charlton Woods, Portbury. Waste ground near Portishead Station, repeatedly. Yatton. Abundant in cultivations at Worle, 1880 and 1902. Under walls in several places about Weston-super-Mare; *Mrs. Gregory*. Bleadon and Uphill. Burnham; *Misses Livett* and *Mayow*. Old wall at Wells; *Miss Livett*. Farmborough. Marksbury. Fortnight Farm, 1907. Plentiful on Odd Down near Bath, 1883, 1891 and 1902. In several other localities near Bath; *Fl. Bathon*. Plentiful in a garden plot on Steep Holm, 1890.

A luxuriant form of this plant with much larger leaves and the upper internodes very short, in appearance approaching *L. intermedium*, has occurred on high ground near Hutton and under Cadbury towards Clevedon.

The Henbit bears two kinds of flowers, *viz.*, a few with slender purple

corollas of about an inch long; and a larger number that are cleistogamous with abortive corollas and closed calyces in which the anthers are fertile and fruit is produced. The showy open flowers can be fertilized by insects.

**738. *L. hybridum* Villars.** *L. incisum* Willd. *Cut-leaved Dead-nettle*.  
Colonist; in waste places; rare. April to July.

**G.** Netham; *Swete, Fl.* The asterisk prefixed to the locality implies that the plant was seen there by the author. Fields about Stapleton; and on rubbish at Montpelier; *Stephens Cat.* (1835). This Stapleton record is copied by *Swete*. Charlton. Frenchay.

**S.** Pill; *Rev. W. W. Spicer*. Portishead, under a wall near the beach; *D. Fry*. Reported thence also by *W. E. Green*. Several plants by the railway near Portishead Station, 1907. Tickenham; *Mrs. Lainson*. Clapton; *Miss Roper*. Clevedon; *Collins*, 1842, in *Herb. Clark*. Castle Farm, Walton-by-Clevedon; and Hangstone Hill; *Miss Livett*. I had a specimen from the western end of the sea-front in 1899. "It is tolerably plentiful about Clevedon, although far less frequent than *L. purpureum*, with which it often grows."—*D. Fry*. Weston-super-Mare; *St. Brody*. Old wall at Uphill; and Hutton; *Mrs. Gregory*.

It seems to me to flower less freely, later, and for a shorter period than *L. purpureum*.—*D. Fry*.

**739. *L. purpureum* L.** *Red Dead-nettle*.

Native or Colonist; on hedgebanks, waste and cultivated ground; abundant throughout the district. Flowers nearly throughout the year.

A plant with white flowers and pale green foliage, on a bank between Clevedon and Tickenham, April, 1897. The same form at Cheddar, 1905; *Miss Livett*, and near Combe Dingle, 1909; *Misses Cundall*. In all cases growing with plants of the ordinary colour.

VAR. *decipiens* Sond.

**S.** By the roadside, Tickenham. Lane at Hutton; *Mrs. Gregory*.

**740. *L. album* L.** *White Dead-nettle*.

Native; under hedges and on shaded waste ground; very common.

February to September.

**741. *L. maculatum* L.** *Spotted Dead-nettle*.

Alien or Denizen; permanently established in many places, with a strong liking for hedgebanks and ditch-bottoms on the main roads. May to July.

**G.** Clifton Down, Oct. 1849; *Herb. Lawrence*. Near the Zool. Gardens, Clifton; *Swete, Fl.* (1854). On a bank in a lane near Redland Court, Bristol, by *Mrs. Vaughan*, April, 1813; *Sowerby's sketch for Engl. Bot.* Lane at the back of Redland Court, 1852; *Herb. Flower* and *Herb. Stephens*. Stoke Bishop, 1881; *T. F. Perkins*. Ditch-bottom on the roadside between Bitton Station and the Church. Wotton-under-Edge; *V. R. Perkins*.



**S.** A large patch in Leigh Woods by a roadside near the Church, 1902. Roadside near the George Inn at Abbotsleigh, 1895. Hedgebank near the golf links at Failand, 1902. Near Dr. Fox's Asylum, Brislington; *Sweete, Fl.* The plant is still there in a hedge-bottom on the Bath Road. Two large patches on Tickenham Hill; *Miss Roper*. Abundant at Chelvey; *Miss Winter* and *W. E. Green*. Hedgebank on the high road near Cleeve. Churchill; *H. S. Thompson*. Max Mill, Winscombe; *Mrs. Gregory*. A patch of about two square yards in a lane from Langridge to the Oxford Road north of Bath. Border of a field between South Stoke and Combe Hay, April, 1855; *Herb. Jenyns*. Edge of Hampton Down, 1896; *A. E. Burr*.

A rare modification of the plant is the *var. lævigatum* with pale, unspotted foliage. This we have at the Leigh Woods locality.

First local record:—Redland Court, 1813, as above. That locality seems to have been one of the first in which the plant became naturalized in this country, and evidently attracted a good deal of attention. Specimens gathered there and distributed by Drs. Thwaites and Stephens are to be found in many collections. In *Trans. Bot. Soc. Lond.* 1839, p. 32, the plant was stated to be still excessively rare near Bristol, and known to Dr. Thwaites only near Redland Court.

This is a cottage-garden plant which establishes itself readily and tenaciously when roots are thrown out with refuse on to suitable ground. Mr. S. T. Dunn, in an instructive paper on the origin of the Dead-nettles in Britain (*Journ. Bot.* 1902), draws attention to the curious fact that, although *L. maculatum* is the most obviously non-indigenous of all the species, yet its native range approaches our islands more closely than any of the others; for its area extends from Persia over mid- and southern Europe until it reaches the woods of southern Belgium.

**742. *L. Galeobdolon* Crantz.** *Galeobdolon luteum* Huds. *Yellow Archangel*. *Weasel-snout*.

Native; in woodland, and moist, shady hedges where the herbage is rank and tall. Peculiarly frequent about Bristol, and rather common throughout our area. I have not noticed its absence from any extensive tract.

April to July.

Culpeper has a quaint reference to this plant.—“*Yellow Archangel*. They grow almost everywhere, unless it be in the middle of the street.”—*Herbal*, p. 37.

### LEONURUS Linn.

**743. *L. Cardiaca* L.** *Mother-wort*.

Alien, rarely a Denizen; on roadsides and waste ground. Very rare now; perhaps commoner formerly when more generally cultivated.

July to September.

**G.** Waste ground, Bristol, June, 1799; *Dawson Turner* and *James Sowerby*. Crew's Hole; *Rootsey's List* (1828). Near the Hot Wells; *Winch*; and Crew's Hole; *Worsley, cat.* in *New Bot. G.* (1835). Sea-bank near the Clifton Gas

Works; *Dr. Stephens* (marginal note in his copy of *Withering*). Hedgebank, Sea Mills, August, 1853; *Herb. Cundall*. On a rubbish heap at Henbury and at Lawrence Weston, 1839; *Herb. Powell*. Lawrence Weston, 1840; *Miss Worsley* in *Herb. Brit. Mus.* Hanham, August 1878; *L. Jenyns* in *Herb.* The plant must have soon disappeared from most of the old localities, for Swete could not find it anywhere at the date of *Fl. Brist.*

**S.** Portishead, 1903; *Miss Martin*. Six or eight plants on a bank by the Portishead Railway east of Ham Green; quite away from any cultivation, 1911! *Mrs. Sandwith*. Roadside at Winscombe, 1882; "in the same place where I had found it when at Sidcot School, years before;" *H. S. Thompson*. By the wayside at Cheddar; *E. Forster jun.* in *Bot. G.* (1805). Worle; *Rutter's Hist.* (1829). Worle Hill; *St. Brody, Fl. Weston* (1856). Near Lymphsham, August, 1881; *T. F. Perkins*. Abundant in a lane east of Burnham, 1888; *D. Fry*.

Mr. Fry inquired of a cottager in the Burnham lane if the plant had been grown in her garden and had possibly spread outside. "Lor no," said she, "it's wild as dirt; there's lots of it in the lane and always has been." Mr. Fry found that the *Leonurus* was known thereabout by the name of "Wild Stinging-nettle," an inappropriate designation, as the plant, though somewhat prickly from the bristles of the calyx-teeth and bracteoles, is entirely devoid of urticating properties. He was further informed that whilst donkeys ate the common nettles with which the *Leonurus* grew, they carefully avoided the latter plant, not having yet learnt, it would seem, to appreciate the "cardiac" virtues attributed to it by the old herbalists.

### GALEOPSIS *Linn.*

#### 744. *G. Ladanum* *L.* *Red Hemp-nettle.*

Colonist; chiefly on arable land and limestone rubble; rather rare.

July to September.

**G.** St. Vincent's Rocks; *Shiercliff's Guide* (1789), and *Herb. Stephens*. Pur Down. Horfield. Filton Meads. Charlton, in cornfields, 1851; *J. H. Cundall*. Roadside near Stoke Gifford; *C. Bucknall*. Between Patchway and Over Park, 1898; *Miss Roper*. Cornfields between Alveston and Eartheott. Thornbury. Several large plants by the lime kilns at Wyck, 1894.

**S.** Cultivated land on the west of Leigh Woods. Between Stockwood and Keynsham; *D. Fry*. Chewton Keynsham. Fields to the north of Queen Charlton. Whitechurch, 1850; and near Clutton, 1849; *J. H. Cundall*. With vetches by Featherbed Lane, Clutton, 1887; *D. Fry*. Fine and plentiful on the ridge above Walton- and Weston-in-Gordano. Clevedon. Congresbury. Cultivated fields near Weston-super-Mare; *St. Brody, Fl. Weston*. Ebbor; *Miss Livett*. Cornfields on Lansdown towards Langridge; *D. Fry*. Common in cornfields; *Fl. Bathon*.

So far as my observation goes, the Bristol plant is all *G. angustifolia* Ehrh., with hairs of the calyx closely adpressed; differing markedly, however, in



breadth of leaf from the Continental *angustifolia*, which has the leaves much narrower. The less common English plant (*G. Ladanum* auct. mult.; *a. normalis* Rouy & Fouc.; *G. intermedia* Villars)—not yet met with in this district—has a shaggy calyx and a differing habit. Surrey specimens of it, gathered by S. T. Dunn in 1894, agree perfectly with *G. calcarea* Schönheit.

**745. *G. Tetrahit* L. Common Hemp-nettle.**

Native; in damp bushy places, open woodland and cultivated ground. Common and generally distributed. July to October.

The white-flowered variation, *f. alba*, is frequent along the line of the G.W.R. between Brislington and Keynsham. I have seen it also by the Frome near Stapleton, and at Northwoods.

Mr. C. E. Salmon finds on Mendip, near the Nordrach Sanatorium, the var. *nigrescens* Brébisson, *Fl. de la Normandie* p. 246. He remarks (*Journ. Bot.* 1908, p. 265) that, besides the purplish-black calyx-lobes, etc., another point distinguishes this variety—its preference for untouched ground rather than cultivated land.

The var. *bifida* Boenn., a much smaller plant, under a foot high, with a much smaller and shorter corolla, has been noted near Shapwick Station (*Fl. Som.*). It is but a slight modification and may not be uncommon.

[*G. speciosa* Mill. *G. versicolor* Curtis.

A casual Colonist, of great rarity in the west of England. A solitary plant, now in the possession of Miss Livett, was found on the border of a cultivation at Ebbor by Miss G. Harte in Sept. 1894.]

## STACHYS Linn.

**746. *S. Betonica* Benth. Betony.**

Native; in open woods, hill pastures and rough bushy places; common. So well distributed that the lists of localities are of doubtful utility.

July to September.

**G.** Clifton and Durdham Downs. Combe Down, Westbury. About Berwick Wood and Spaniorum Hill. Rodway Hill. Siston Common. Almondsbury. Alveston Common. Tytherington Hill. Milbury Heath. Yate Common. Ivory Hill. Iron Acton. Cromhall. Berkeley. Wotton-under-Edge. Wickwar. Quite abundant on the poor clayey soils north of Yate.

**S.** Leigh Woods. Failand Hill. Portishead Downs. Tickenham Hill. Cadbury Camp. Walton-in-Gordano. Clevedon. Ursleigh Hill and Queen Charlton. Wood borders at Cleeve and Congresbury. Grassy slopes on Mendip near Cheddar, Draycott, etc. Emberrow. Boggy fields between Churchill and Honey Hall. Temple Cloud. Wells. Glastonbury Moor; *Fl. Som.* Frequent in woods and thickets about Bath; *Fl. Bathon.*

An occasional woodland species characteristic of the oak, ash, and oak-hazel woods of N. Somerset; *Dr. C. E. Moss.*

With white flowers at Upper Canada, Hutton; *Miss Livett*; and at Weston-super-Mare, 1850; *J. H. Cundall.*



R. Morgan del. et lith.

*Stachys alpina* L.

West, Newman imp.





Great virtue was formerly attributed to Betony; and although now discarded by medical practitioners it is doubtless as useful as many a modern nostrum. The plant is still much handled by herbalists, and I have frequently come upon persons gathering it for a domestic medicine. The Italian complimentary proverb, *You have more virtues than Betony*; and the maxim *Vende la tónica e compra la Betonica*, are quoted by Dr. Woodville in *Medical Botany*.

[*S. lanata* Jacquin.

This garden plant grew, some years ago, on the ridge between Weston-in-Gordano and the sea, in company with Wormwood and Cat-Mint, and is likely to be there still. It may have been this species which was noted by Duck (1852), as "*S. germanica*, in the fir-wood near Woodhill, Portishead;" and (under the same name) by Stephens in his *Catalogue* (1835) as occurring "in hedges in various places." Dr. Syme, in *Engl. Bot.*, gives other instances of this having been mistaken for *S. germanica*, when running wild.]

747. *S. alpina* L. *Alpine Woundwort*.

Native; in open woodland on some southern spurs of the Cotswolds between North Nibley and Wotton-under-Edge, G., at an elevation of 550 to 650 feet. Discovered by Mr. Cedric Bucknall in 1897, and unknown elsewhere in Great Britain. For detailed description see *Journ. Bot.* 1897, p. 380, and 1898, p. 209. The original figure is reproduced in this book. June to August.

The locality lies upon oolite covering the upper lias sands. The plant is thinly scattered in clumps among underwood and along the wood-borders, seeming to prefer the sunniest and most sheltered positions. It occurs also in thickets below the woodland and, more abundantly, on hedgebanks for a considerable distance; the total area being about two square miles. Many of the accompanying species, such as *Pyrus Aria*, *Valeriana Mikanii*, *Campanula glomerata*, *Stachys sylvatica*, *Polygonatum officinale* and *Convallaria majalis*, grow with it likewise in Central Europe.

In spite of the specific name, which Linneus bestowed on it in common with many other species that are found on mountains, *S. alpina* is by no means restricted to high altitudes and is not strictly an alpine plant. In the warm valleys of Carinthia, at about 2,000 feet above sea-level, I have found it to take precisely the same form as, and to be much more plentiful than, at elevations of 4—6,000 ft. in pine woods of the Dolomites and N. Tyrol. It is known to extend from central Spain through France and Belgium as far as the mountains of Macedonia.

Existing with us as a remote outlier, it is difficult to explain the origin of this *Stachys* in our district. An analogous example of a plant found in a locality far from its head-quarters is that of *Euphorbia stricta*, almost confined to the Tintern part of the Wye valley, but having a wide European distribution outside Great Britain.

The English plant is as tall and robust as any foreign specimens that I have seen, and is larger in all its parts than the other British species. Stem erect, stout,  $2\frac{1}{2}$  to 3 feet high. Lowest leaves cordate-oval on long stalks, upper leaves shortly stalked or sessile; floral leaves large, straight-sided, gradually increasing in size from the terminal tuft downward, dark bronze or purplish green, very hairy and velvety on both surfaces. Corolla larger and broader than that of *S. sylvatica*, purplish, blotched with orange and cream; woolly



outside and having a ring of oblique hairs within the tube. Whole plant dark in hue, hairy and velvety throughout, and somewhat glandular towards the top. Flowering commences at the beginning of June and continues well into July.

It may appear strange that so important a plant should have escaped notice in West Gloucester during so long a period. But it must be remembered that the locality is much out of the way of botanists, who alone would be at all likely to observe such an unobtrusive species. The coppice is cut only at intervals of from 15 to 20 years, so it would be a matter of chance also if it were explored at a time when the plant could be readily seen. Some of us, however, had certainly walked over the ground more than once unheeding, or seeing nothing beyond a supposed form or hybrid of *S. sylvatica*. All honour therefore to the discoverer, whose perception was not so blunt.

One of those unsupported announcements that give endless trouble appeared in *Nature Notes* for February, 1906; where in an account of a ramble on the Sussex South Downs the writer claimed to have found, during the preceding August, a specimen of *Stachys alpina*. In reply to inquiries made by my friend Mr. C. E. Salmon, the writer defined the locality as being "in a meadow leading from the Cuckmere river at Lullington to Alfriston, by the side of a public pathway," and said that he destroyed the one plant found. He described the flowers as dark purple in colour. On consideration of the circumstances, so far as known, one finds it difficult to believe that this plant was rightly named.

**748. *S. sylvatica* L. Hedge Woundwort.**

Native; on wood borders, hedgebanks and shaded waste ground; common  
July and August

In a lane by the Cam Brook near Dunkerton I have noticed plants with very pale tinted flowers, conspicuously different from those of the customary deep brick-red.

**749. *S. palustris* L. Marsh Woundwort.**

Native; on ditchbanks, and in moist weedy places and neglected arable land; common.  
July and August.

This is well described as paludal and agrestal. Although most frequently met with in damp, low-lying ground, it can yet flourish on a limestone hill. It grows by a roadside near the Suspension Bridge, and I have seen it filling a potato plot on the top of Worle Hill. Better drained or drier localities than these could hardly be found. *S. sylvatica* and *S. palustris* are both "common;" but the latter is much less frequent than the other.

**750. *S. ambigua* Sm. ? *S. sylvatici-palustris* Wirtg.**

Considered to be a hybrid between the last two species. On hedgebanks and waste ground; rare, but likely to be overlooked. Always found in company with the parents; and, according to Hooker, never producing fruit. It keeps its footing by means of strong subterranean stolons. Smith's plant as figured

in *Engl. Bot.* is almost an exact intermediate, but such examples are far less commonly met with than other hybrids which approach more nearly to *palustris*. It is better to disregard those which appear to be merely *palustris* with shortly stalked leaves, unless the flower-tint and scent of the foliage are suggestive of *sylvatica*. July and August.

**G.** Between Sea Mills and Kingsweston; *Miss Atwood* in *Sweete, Fl.* Bank of Avon, 1882; *Rev. W. H. Painter*. Waste ground, Clifton Park, 1887, now built over. In a ditch bounding Miller's Nursery Garden, Bristol; *C. C. Babington* in *New Bot. G.*

**S.** Clapton-in-Gordano, 1902. Cornfield, Cheddar; *Dr. C. E. Moss*. Bathampton and Batheaston; *Fl. Bathon. Suppl.* Near Whatley by Frome! *Rev. S. Laing*.

**751. *S. arvensis* L.** *Corn Woundwort.*

Native or Colonist; in cultivated fields; common. July to September.

[**S. annua** L.

Alien. Casual. In waste places and ploughed land; rare.

July to September.

**G.** Sparingly for some years (1883 to 1888) on a small colliery waste-heap near Kingswood. Waste ground, St. Philip's, Bristol, 1901-4.

**S.** One plant in a fallow field between Twerton and Englishcombe, 1886; *D. Fry*. Portishead Station-yard, 1904 to 1908.]

**BALLOTA** Linn.

**752. *B. nigra* L.** *B. fetida* Lam. *Black Horehound. Stinking Horehound.*

Native; by roadsides, and on hedgebanks and waste ground near houses. Common, but not generally abundant. July to September.

"We have in Sumershire, beside ye common Hysop that groweth in all other places of Englande, a kinde of Hysop that is all roughe and hory and it is greater muche and stronger than the common Hysop is: som call it roughe Hysop."—*Turner, Herb. II*, p. 18 bis.

Turner, I suppose, was writing of *Ballota*. Babington, too, calls it a "hard coarse plant;" and that description certainly applies to most of our ordinary wayside growth of the species. But it varies much in the amount and nature of its hairy clothing; the latter sometimes becoming quite soft and woolly, as in specimens I have from a roadside near Winterbourne, G. The same velvety pale-foliaged plant is common along the Kentish coast, and has been distributed from Herefordshire as *var. borealis* Schweigg. Whether this name be correct or no, the soft, villous plant of the West of England appears to be a well-marked variety. Some plants found at Clifton are placed under *var. borealis* by Miss Atwood and Mr. Borrer in *Sweete, Fl.* p. 61.

I have not met with anything that accords with *B. ruderalis* Sw., which is described as having a different calyx. Prof. Babington said it was "abundant at Llanwarne, Herefordshire;" but neither Mr. J. G. Baker nor the Revs. A. Ley and W. H. Purchas could consider the Llanwarne plant to be more than a form of *B. fetida*. As a native of Britain *B. ruderalis* must be extremely rare. It has occurred once or twice as an introduction with dockyard casu-



**MARRUBIUM** Linn.**753. M. vulgare** L. *White Horehound.*

Native or Denizen; chiefly on downs and sandy ground near the Channel; rather rare and local. July to September.

**G.** St. Vincent's Rocks; *Herb. Stephens.* Durdham Down; *H. O. Stephens* in *Sweete, Fl.* Brandon Hill, 1835; *Stephens Cat.* Penpole Point, July, 1843; *Herb. Flower*; and 1882; *W. E. Green.* Siston Common; *D. Fry.* Ivory Hill near Coalpit Heath. Shingly beach on the Severn below New Passage. Goose Green Farm, Yate; and Yate Rocks; *Miss Roper.*

**S.** On rock by the side of the Portishead road at Easton-in-Gordano. Portishead; behind the esplanade and on the north side of the wood, 1906-1910. On the wooded hillside near Weston-in-Gordano. Near Cadbury Camp; *D. Fry.* At several places in Walton-in-Gordano. Dial Hill, Clevedon; *D. Fry* and *W. E. Green.* Hillsides above Loxton and Compton Bishop, 1882; *H. S. Thompson*; and 1896! Wavering Down and Crook's Peak, in many spots. On Sand Point. Sand Farm in Kewstoke Bay, permanent. Worle Hill, 1850; *Herb. Cundall.* Many plants there in 1884. Weston-super-Mare, on the Ashdown and Kewstoke roads; *St. Brody, Fl.* Brean Down, in plenty. A large patch on sand near Brean village; *Fl. Som.* Abundant on waste ground near Berrow Church before the golf invasion; and sparingly on the sand-hills hard by. Common on Steep Holm. Apparently absent from the Bath district.

Certainly indigenous on the Carboniferous Limestone downs of our area. More like a casual on the coast beach and dunes.

**TEUCRIUM** Linn.**754. T. Scorodonia** L. *Wood Sage.*

Native; about dry open woods, commons and heathy places; common. Too generally distributed to require an enumeration of localities. July to September.

[**T. Chamædrys** L. *Wall Germander.*

Alien; only on old walls or the site of ancient cultivation; very rare. It is doubtful if the plant now survives at any of the localities mentioned. July to September.

**G.** Shirehampton, August, 1839; *Miss Waring* in *Herb. Powell.* Blaize Castle, 1840; *S. Freeman* in *Phytol.* I. p. 328. Hillside near Henbury, 1850; *Miss Waring* in *Herb. Watson.* Near the Combe valley, Henbury; *A. Worsley* in *Herb. Watson.*

**S.** By a roadside near Tickenham; *Rev. G. W. Braikenridge's List.* Tickenham near Clevedon, July, 1863; *Herb. Flower.* Dry slope beyond Clevedon Court towards Tickenham, 1884; *Miss Livett.* "I have a specimen of *Teucrium Chamædrys* from Tickenham Hill, brought to me in July, 1883, by Dr. Davis of Clevedon, who then told me that the plant had very much diminished in quantity since he first knew it, very little of it being left. I searched for it subsequently at the spot described by Dr. Davis, on more than one occasion I believe, but in vain; and I fear it has long since become extinct. If Dr. Davis was right in regarding it as having been derived from the garden of a monastery which once occupied a site on Tickenham Hill, the *Teucrium* was an interesting relic of mediæval times."—*D. Fry*, 1904.

The Wall Germander is included in a list of plants observed on Steep Holm, 1877 and 1883, by Mr. John Storrie of the Cardiff Museum.]

**AJUGA** Linn.**755. A. reptans** L. *Bugle.*

Native; in damp open woods and other moist shady places; generally distributed and indifferent to the nature of soils. May to July.

The white-flowered plant is not rare. In Gloucestershire I have seen it by Over Lane, and in Westridge Wood above Wotton-under-Edge; and on the Somerset side in Leigh Wood, in a wood between Abbotsleigh and Failand, and in Weston Big Wood between Portishead and Clevedon. Miss Livett has it from Ebbor on Mendip; and Miss Roper from Limeridge Wood in 1905.

The white-flowered sports of *Ajuga*, *Prunella* etc. attracted the attention of botanists in very early times and led to discussion on the value of colour as a specific distinction. It is a modern thought that the blanching of blue and purple flowers may be connected with increase of elevation above sea-level: an idea which receives some support from the prevalence of white *Carduus palustris* on the Mendips, and on Irish hill-ranges of like altitude: from the presence of white Herb Robert on the highest rocks of Burrington Combe: of white *Centaurea Scabiosa* on St. Vincent's Rocks; and other similar occurrences in this district and elsewhere. But an attempt to inquire closely into the conditions which induce such colour changes would be beset with many difficulties.

[**A. Chamæpitys** Schreb. *Ground Pine*.

Casual. Not a West of England species, but practically confined to the South-eastern counties.

**G.** One plant on dredgings deposited in the Black Rock Quarry, August, 1883. One on rubbish tipped in St. Philip's Marsh, Bristol, September, 1887.]

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## VERBENACEÆ.

### VERBENA Linn.

#### 756. **V. officinalis** L. *Vervain*.

Native; on roadsides and dry banks; frequent.

July to September

**G.** On the Observatory Hill. At the foot of St. Vincent's Rocks, and all along the course of the river, plentiful; just as in Withering's time He used the same words in his *Arrangement* more than a century ago St. Philip's Marsh. Stoke Bishop. Henbury. Crew's Hole. Conham. Siston. Shortwood. Pucklechurch. Bridge Yate. Abson. Doynton. Wyck. Alveston Almondsbury. Abundant about Moorend, Winterbourne, Ivory Hill and Frampton Cotterell. Elberton. Rangeworthy. Yate Rocks. Tortworth. Near Charfield old Church.

**S.** Bank of Avon below Bristol. Portbury. Portishead. Weston-in-Gordano; *D. Fry*. Wraxall. Tickenham and Stone Edge Batch. Kenn. Clevedon, on several hills and at Walton Down. Yatton. Congresbury. Winscombe; *H. S. Thompson*. Cheddar. Draycott. Shipham, and Dean near Cranmore; *Fl. Som.* Paulton. Timsbury. Peasedown. Weston-super-Mare. Wells. Frequent on waste ground about Bath; *Fl. Bathon*.

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## LENTIBULARIACEÆ.

PINGUICULA *Linn.*757. *P. vulgaris* L. *Common Butterwort.*

Native; in peat bogs; very rare and local.

May to July.

**G.** "In the Alderley district;" *V. R. Perkins*. This report needs investigation: I have not seen a specimen.

**S.** In a boggy dell or ravine near Gurney Slade and Old Down, on the road from Wells to Bath, 1875; *Miss Livett*. This spot has been drained and the plant lost. Glastonbury and Burtle Moors; *Sole* in *Collinson's Hist.* (1791). "Rather plentiful towards the southern and eastern borders of the peat moor," 1856; *T. Clark*. Peat moor near Shapwick Station; *Mrs. Gregory*. Walton Heath near Glastonbury, abundant in 1886; *D. Fry*. Noted by Dr. C. E. Moss, from personal observation (1901 to 1906) to be an "occasional species" on the peat moors of North Somerset.

It is remarkable that Butterwort has not occurred more frequently on boggy hillsides among the Mendips, which afford some suitable localities.

758. *P. lusitanica* L. *Pale Butterwort.*

Native; in boggy places; very rare and local.

June to September.

**S.** Marshy fields towards the southern border of the peat moors, not plentiful; *T. Clark*. A specimen in *Herb. Clark* is dated 1857. Glastonbury Moor near Street; *Fl. Som.* Plentiful on the peat moor a short distance south of Shapwick Station, with *Wahlenbergia*; *Mrs. Gregory*. A local species on the peat; *Dr. C. E. Moss*.

UTRICULARIA *Linn.*759. *U. vulgaris* L. *Greater Bladder-wort.*

Native; in pools and ditches here and there throughout the marshlands between the Mendips and the Channel, wherever the valleys are peaty. Rare and local.

July and August.

**S.** Moors below Nailsea and Tickenham. Kenn Moor. Yatton. Clapton and Weston Moors, and ditches towards the head of the valley by Walton Drove near Clevedon. Axbridge, Nyeland, and elsewhere in the Cheddar valley. Mark. Wedmore. Ditches and pits on the peat between Burtle and Glastonbury. In the canal near Midford by Bath; *Rev. L. Blomefield*.

760. *U. major* Schmid. *U. neglecta* Lehm. *Lehman's Bladder-wort.*

Native; on Shapwick Moor; extremely rare.

August, September.

**S.** Discovered by Mr. D. Fry and the author on Sept. 9, 1902, in pools formed by turf-cutting about half a mile S.E. of Shapwick Station. The plant had not been previously observed in Somerset. It was not growing

with *U. vulgaris*; and according to the Rev. E. F. Linton the two species are seldom found in association.

Not to be easily confused with the Common Bladder-wort in the fresh state; but in drying the delicate flowers usually lose their shape, and some of the principal points of difference disappear. It is best distinguished by a free-branching habit and more showy flowers, in which the upper corolla-lip is twice as long as the small palate, and the lower lip has a broad flat margin spreading horizontally, instead of being deflexed at right angles all round. The bladders are small, only about half the size of those in *U. vulgaris*.

[*U. intermedia* Hayne. *Intermediate Bladder-wort*.

In 1894 I took from a ditch on Clapton Moor in the Walton valley some flowerless Bladder-wort which appeared to have bladders on leafless shoots, the peculiar character of this seldom-flowering species. The Rev. E. F. Linton was inclined to concur on a first examination of my specimen, and on this basis *U. intermedia* was published as a Somerset plant in *Journ. Bot.* 1901 p. 92. But we have never met with any flowers to complete the specimen, and this inability rendered the determination so doubtful that it was thought advisable later to withdraw the too hasty record as a possible error (*Journ. Bot.* 1903, p. 56). My plant still remains unnamed and barren.

Watson, in *Topogr. Bot.*, says this species has been cited from Somerset; probably by the late Rev. J. C. Collins, in whose copy of Hooker's *Flora* (1839) is a marginal note pencilled against the plant "Burtle Turf-moor."]

#### 761. *U. minor* L. *Smaller Bladder-wort*.

Native; in pools and ditches; very rare.

June and July.

**S.** "Lesser Hooded-Milfoil. Habitat . . . prope Glastenbury in agro Somersetsiensi copiose." *Huds. Fl. Angl.* ed. ii (1778). Turf pits, Glastonbury; *Sole* in *Collinson's Hist.* (1791). Turf moor, Shapwick, 1841 and 1857; *Herb. Clark*. Peat ditch near Shapwick Station, 22 June, 1898, then barren; and at the same spot in flower, 18 July, 1906; *C. Bucknall*. Ashcot and Glastonbury Moors; *Fl. Som.*

The fine delicate stems of this plant, barren, with glabrous winter-buds, are abundant in ditches on Clapton and Weston Moors in the Walton valley; and on Kenn Moor. I have never seen a plant in flower at those localities. The bloom of *U. minor* is known to be very ephemeral, lasting but a few days.

An excellent article on the British species of *Utricularia*, with figures and descriptions, was published by the Rev. E. F. Linton in *Proc. Dorset Nat. Hist. and Antiquarian Field Club*, 1894. The abstract of an article by E. Warming on the germination of seeds of *U. vulgaris*, showing that no root whatever is produced, will be found in *Journ. Bot.* xii, p. 318.

It is the uncertainty in flowering of these curious plants which makes it so difficult to ascertain their distribution. One or two of the species rarely produce flowers, while none can be said to flower regularly or freely in proportion to the number of individuals existing, except perhaps in very hot and dry summers. Propagation, however, is ensured by vegetative process through winter-buds developed at the ends of the branches. While flowers must always be desired for determination, it is possible to recognize most members of the family by foliage characters alone. Peaty ditches can be raked in the autumn and specimens burrowing in the mud below the water, whose presence would otherwise remain unsuspected, may thus be obtained.

The bladders were formerly considered to be air receptacles, and supposed



to exist for the purpose of floating the plant on the surface of the water at the flowering period. Withering indeed, 130 years ago, noted that the bladders contained fluid with only a small bubble of air, and that this liquid, "greatly magnified, appeared to contain a quantity of minute solid particles." But it was not until 1875 that Darwin, in *Insectivorous Plants*, showed that the bladders were really pitchers or traps adapted for the capture of crustaceans and other minute creatures whose bodies are digested and assimilated by the plants. In this way is compensated the deficiency of nitrogenous food which results from an entire absence of roots in this genus. The bladders, in fact, carry on some of the alimentary functions that are performed by roots in other plants.

## PRIMULACEÆ.

### HOTTONIA *Linn.*

#### 762. *H. palustris* L. *Water Violet.*

Native; in peaty ditches of the marshlands, locally plentiful. May and June.

**S.** Abundant in ditches below Axbridge, Cheddar and Draycott; and throughout the lowlands on to the peat moors between Highbridge and Glastonbury.

A mass of *Hottonia* in full bloom, bedded in bright green duckweed and framed by the darker tints of tall rush and sedge, forms a picture of exquisite loveliness. Its beauty is heightened by contrast with the expanse of drear moorland in which it lies hidden.

### PRIMULA *Linn.*

#### 763. *P. acaulis* L. *P. vulgaris* Huds. *Primrose.*

Native; in woods and on hedgebanks; very common. March to May.

Pure white, and purplish varieties have been met with in woods near Temple Cloud, S. A sport with the calyx converted into leaves was found in 1883 by Miss M. Mayow, near Easton; *Fl. Som.*; and near Shepton Mallet, 1900, by Miss Roper. On the border of a field under Backwell Hill at the end of March, 1905, I found a primrose monstrosity with three flowers raised upon a stalk. Each flower consisted of a corolla of the ordinary size and colour, but out of its tube grew a second corolla in all respects similar. This sort of duplicate or hose-in-hose flower is said by Masters to be due apparently, not so certainly to the formation of a second corolla within the first, as to the presence of an inner series of petal-like stamens which by their cohesion form a second pseudo-corolla. A sport of this sort was known to Gerard, *Herball* (1597), p. 637.

Primroses have flowered on Ashley Down (a rather exposed position) by the first week in February. On Mendip, in sheltered spots facing north, they continue until the middle of June.

VAR. *caulescens* Koch.

I take this to be merely a state in which the flower-umbel, instead of being sessile and radical, is raised upon a stalk: in all else it is just the ordinary primrose. The following localities refer to this form (permanent in cultivation) and not to any hybrid with the cowslip.

**G.** Between Filton and Charlton. Spaniorum Hill near Compton Greenfield.

**S.** Stockwood. Maes Knoll. Keynsham; *G. H. K. Thwaites* in *Swete, Fl.* I have seen it towards Queen Charlton. The Wild Country, between Yanley Lane and Barrow Gurney. Corston; *D. Fry*. Mr. Fry had here a remarkable plant producing both kinds of inflorescence; some flowers being radical as in the common primrose, while others were in a raised umbel. This example certainly shows that the caulescent plant is nothing but a form of *acaulis* due to certain unknown conditions. Breach Hill near Chew Stoke; *D. Fry*. Clearings in Weston Big Wood near Portishead. Frequent in pastures about West Harptree.

HYBR. *acaulis* X *veris* = *P. variabilis* Goup.

Distinguished by its richly coloured flowers of deeper yellow, variable in size but always intermediate in form and tint between those of the parents. The scape seems to be taller or shorter in proportion to the degree in which the specimen favours the cowslip or primrose respectively. These hybrids are commonly miscalled "Oxlips," but the true oxlip of the eastern counties is a distinct species (*P. elatior* Jacq.).

**G.** Sparingly by Berwick Wood, Henbury; *S. G. Perceval*. Over Court Woods, 1906; *Miss Jacques*. Frequent about Thornbury; *F. Samson*. High Wood, between Charlton and Patchway, 1883. Still there in 1909, when Mr. Samson found, among others, a plant with its umbel sessile: unique in my experience.

**S.** Border of a field near the entrance to Bourton Combe, 1905. In a cottage garden not far off were more than a dozen roots which had probably been brought in from outside. Walton- and Weston-in-Gordano; *Mrs. Lainson*. Canon's Wood near Walton; *Miss Livett*. Clevedon; *W. E. Green*. Yatton Churchill. Plentiful in Ball Wood near Congresbury; *Mrs. Gregory*. Cleeve Combe; Compton Dando; and the "Daffodil valley," Star; *Miss Roper*. Norton Hautville; Lord's Wood, Houndstreet; Breach Hill near Chew Stoke; Featherbed Lane by Stanton Wick; Litton and Compton Martin; *D. Fry*. Luxuriant at West Harptree, 1908. Frequent in Murdercombe between Mells and Great Elm. Common about Wells; *Miss Livett*.

764. *P. veris* L. Cowslip. Paigle.

Native; in meadows, pastures and borders of woods. Common and well distributed on calcareous soils: much less abundant on the Pennant Grit of the Coal-measures.

April and May.

My earliest note of gathering cowslips is on March 30; at Elberton.



**[Cyclamen hederæfolium Ait. Sow-bread.**

A doubtful native of Britain; only indigenous possibly in East Sussex and Kent. Mr. Stephen Dunn (*Alien Flora*) considers it to be almost certainly an introduced species. The unbridged gap of three centuries, which separates the following references to the occurrence of the plant in this neighbourhood, makes it improbable that they can form more than a coincidence.

**S.** "It is reported unto me by men of good credite that *Cyclamen*, or Sowbread growth . . . in Somerssetshire by the house of a gentleman called Master Hales."—*Gerard*, p. 695 (1595).

Wood in a private policy on a hillside near Congresbury, whence specimens gathered by Mrs. James were supplied to the Watson Exchange Club in 1904. Mrs. Gregory, who knew the locality, informed me that the plant appeared to be naturalized, and was increasing year by year.]

**LYSIMACHIA Linn.****[L. thyrsiflora L. Tufted Loosestrife.**

A northern species, never likely to be found wild in this part of the country. But it was one of the plants experimented with by Sole, at Bath, towards the end of the eighteenth century. He was fond of planting out rarities in spots which he thought suitable but which Nature had not selected. In 1782 Sole wrote:—"Having had it [*L. thyrsiflora*] given me, I have planted it in a low place by the side of the Avon . . . where it flourishes very well." A good many years later, Mr. Jelly, of Bath, gave the locality as "Sides of the Avon going to Tverton." I believe no other reference to this Avonside habitat was ever published; no doubt the plant disappeared after a while. Another planting by the same hand (as is credibly presumed) was more successful. In the South Wraxhall bogs this Loosestrife is still growing, as it was said to do by Babington in *Fl. Bathon* (1834). These bogs are in Wilts. Messrs. Baker and Warren saw it there in 1884, and thought it was "on its last legs"; a statement with which Mr. Fry, who visited the spot in July, 1886, did not at all agree, as he found a fair quantity. Certainly when I went to the bogs with Messrs. Burr and Fry in July, 1887, we saw plenty of the plant, then past flowering but looking well.]

**765. L. vulgaris L. Great Yellow or Common Loosestrife.**

Native; by the sides of rivers and pools, frequent.

July and August.

**G.** Baptist Mills; i.e. "that part of the river Frome at Baptist Mills called the Back Ditch."—*Stephens Cat.* (1835). Sparingly by the Frome at Stapleton, 1880. Formerly plentiful in Glen Frome; *J. H. Cundall*. Now apparently lost on that part of the river. In some quantity about a swamp and ponds in the bottom near Winterbourne Church. Sparingly in a ditch between Coalpit Heath and Ivory Hill. By the mill pool at Frampton Cotterell. In a damp hedge-bottom near the Frampton Water Works; and near Yate Rocks; *Miss Roper*. Iron Acton Lane; *Miss Cockle*. In a hedge-bottom between Acton Court and Latteridge it grows in considerable quantity. By the lake in Tortworth Park. Rather plentiful in one spot by the roadside between Rangeworthy and Hall End.

**S.** Bedminster Meads; *Swete, Fl.* Now gone? Brislington; by the G.W.R. at Fox's Wood! *D. Fry*. By the line in the Saltford cutting; *C. Wilhers*. Nailsea Moor. Yatton; *Miss Winter*. Between Yatton and Kenn; *D. Fry*. Court lane, Clevedon. Draycott Moor; *C. Wall*. Ditches south of Wedmore, and on the peat moors in many places. Rare in the neighbourhood of Wells; *Miss Livett*. Bank of Avon below Bathford, 1887. Riverbank near Batheaston; *Fl. Bathon*. By the Dundas Aqueduct; *T. B. Flower*.

The plant in the Saltford railway cutting is var. *grandiflora*, so named by Backhouse of York, who stated that the variety was well known to nurserymen. The difference between this and ordinary *vulgaris* appears to be that the panicle is terminal, instead of axillary and terminal; whilst the flowers are more showy, being larger and suffused with red at the bases of the petals; *D. Fry*. I have seen this in Bristol gardens and heard it called "Yellow Phlox." A little colony

has been for some time established by the roadside on Marchant's Hill, below Old Down; S.

**766. L. Nummularia L.** *Money-wort. Creeping Jenny.*

Native; on boggy ground in meadows, the overhang of ditches, and moist banks in open woodland. Rather local, but abundant in many places.

May to August.

**G.** Marsh at the Boiling Well, under Ashley Hill. Plentiful on ditchbanks in Hallen Marsh, Crook's Marsh, etc. Between Stoke Gifford and Hambrook. By the Bradley Brook near Winterbourne. St. Anne's Pool near Siston; *Misses Cundall*. Inglestone Common. Yate Rocks. Abundant along the grassy drives of the Lower Woods, Wickwar; *Miss Roper*. Tortworth. Berkeley.

**S.** Leigh Woods. Swampy margins of pools between Abbotsleigh and the Tan-pits. Markham Bottom. Near Whitchurch; *D. Fry*. In the Chew valley near Pensford and Woollard. Stanton Drew. Peaty meadows west of Dundry Hill. Marshes near Portbury. Yatton. Kenn Moor. Clevedon. Wroughton; *Miss Roper*. Frequent in the Cheddar valley below Wincombe, Cheddar, Draycott and Wedmore. Near Churchill, Honey Hall and Brinsea Berrow. Stoke Lane. Wells. Peat moors. Banks of the abandoned coal canal near Dunkerton and Camerton. Frequent in damp places; *Fl. Bathon*.

This free-flowering ornamental creeper is often cultivated with good effect, as may be seen in Clifton Churchyard, where some of the shaded grave-stones are framed in masses of its golden blossoms during the month of July.

**767. L. nemorum L.** *Wood Loosestrife. Yellow Pimpernel.*

Native; in damp woods; common and well distributed. June to September.

First record for Britain:—"Anagallis lutea . . . In Angliæ nemoribus locisque opacis . . . dum hæc commentaremur altero in Bristoia lapide."—*Lobel. Adv.* p. 194 (1570).

[**Androsace maxima L.**

Casual in Portishead Station-yard, 1909! *Miss Hill*. A rare visitor to this country. It has been noticed under similar conditions at a seaport in the North.]

**GLAUX Linn.**

**768. G. maritima L.** *Black Saltwort.*

Native; in salt marshes along the coast and on margins of the tidal inlets. Locally common.

June to August.

Noted on our Avon banks by botanists of the eighteenth century. "In a meadow by Wapping, and in a rope-walk near the water in the parish of Clifton."—*Camden's Britannia*, *Gough's* ed. (1789). Wapping lay behind St. Raphael's Church before the New Cut was made. The estuarial alluvium must be full of Saltwort seed, for at the completion of the Royal Edward Dock a great crop of it came up on adjoining made ground, filled in to a depth of many feet with excavated material.



## ANAGALLIS Linn.

**769. A. arvensis L.** *Scarlet Pimpernel.*

Native or Colonist. On the coast sand-dunes and on cultivated land; common and well distributed. Most frequent on light soils. June to August.

**770. A. cærulea Schreb.** *A. femina Mill.* *Blue Pimpernel.*

Colonist; on cultivated and waste ground; rare. July to September.

**G.** Cornfield at Horfield, 1840; *T. B. Flower*. Horfield, 1843; *Thwaites* in *Herb. Brit. Mus.* Henbury, 1842; *Herb. Powell*. Combe Hill, Westbury, *Miss Powell*; and Ashley; *H. O. Stephens* in *Swete, Fl.* Still on waste ground under Ashley Hill, 1911. Cornfields, Charlton, 1849 and 1851; *J. H. Cundall*. Garden weed at the Convalescent Home, Durdham Down, 1907. Waste ground, St. Philip's Marsh, 1901 to 1911. Railway sidings by Avonmouth Dock, 1900 and 1902. Marshfield; *Fl. Bathon*. Dursley; *Miss Gingell*.

**S.** Cornfields on lias, Knowle, 1840; *Leo, H. Grindon*. Cornfield between Abbotsleigh and Failand, 1881. Portbury, with the *Myosurus*; *Misses Hill and Peacock*. Portishead Station-yard, 1904 to 1910. Arable land between Keynsham and Stockwood, 1886. Stubble field on Ashton Hill between Corston and Burnet, 1886; *D. Fry*. Queen Charlton, 1889. Frequent about Stanton Prior; *Rev. S. Browne*. Clevedon, "with variations in mauve and white;" *D. Fry* and *W. E. Green*. Moreton, near Compton Martin; *Dr. Gough*. Weston-super-Mare; *St. Brody*. Berrow, 1882. Burnham; *Fl. Som.* Wells. Midford, 1861; *Herb. Flower*. Conkwell, on the Wilts border, permanent; *Miss Martin*. Waste ground near Twerton, 1902. Barrow Hill and Swainswick; *Fl. Bathon*.

A comparative analysis of the characters of *A. arvensis* and *A. cærulea* is reported by Mr. James Edwards in *Journ. Bot.* 1906, p. 368. That these plants are distinct species appears to be a reasonable conclusion.

Dr. Williams, in his *Prodromus Fl. Brit.*, adds a second blue Pimpernel (*A. latifolia* L.) to the British flora. This is said to be an introduced alien: an erect plant with bright, glossy green (not glaucous), broad-based, amplexicaul leaves.

The mauve or flesh-coloured Pimpernel (var. *carnea* Schrank) has occurred several times about Bristol, either among corn or as a garden weed. Hitherto this has been rather generally regarded as a hybrid between the blue- and scarlet-flowered plants, but the more probable view is that it is merely a pale variety of the latter.

**771. A. tenella L.** *Bog Pimpernel.*

Native; in bogs and wet peaty meadows. Rather rare and local.

July and August.

**G.** In a little spring-head near Mangotsfield. Plentiful about a large swamp on the border of Siston Common. In two boggy pastures by Hallen Marsh. In the like near Yate Rocks; *Miss Roper*.

**S.** Spring-heads of two rivulets on the slope of Lower Failand ; and by the stream that runs into Markham Bottom through the Tan-pits. First reported from the latter spot by Mr. D. Fry. Chelvey. Marsh under the hills between Wraxall and Tickenham. Weston and Clapton Moors. Many small patches occur on Walton Down near the Channel, where the subsoil is moist from the ooze of tiny springs. Yet the surface is dry enough to carry upland species, with which it is odd to see this bog plant in association ; *Miss Livett*. Marshy field above West Town, Nempnett ; *Dr. Gough*. The Max meadows below Winscombe. Under Crook's Peak, Burrington ; *W. H. Wickes*. Rowberrow Warren ; *Fl. Som.* Blackdown on Mendip. In plenty on Downhead Common. Easton, and the Watchetts near Wells ; *Miss Livett*. Peat moors. Boggy ground below the Grenville Monument on Lansdown ; *Miss Roper*. Bog to the east of Sham Castle ; *C. C. Babington*. Valley between Combe Down and the Frome road ; also by the path from Hampton lane to the railway ; *Fl. Bathon*.

### SAMOLUS *Linn.*

#### 772. *S. Valerandi* L. *Brook-weed*.

Native ; in marshes and on ditchbanks, especially near tidal waters ; frequent. July to September.

**G.** Bank of Avon under Cook's Folly ; *H. O. Stephens* in *Sweete, Fl.* By the Frome under Stapleton. Avonmouth marshes, and ditches below Lawrence Weston. Marshes between Hallen and the Severn. Margins of brooks near Berkeley. About the Leechpool.

**S.** Lower Failand in small quantity. Salt-marsh ditches along the Channel near Portbury and Portishead. Plentiful in wet places on the coast between Portishead and Clevedon. Clapton and Weston Moors. Walton Drove. Nailsea and Tickenham Moors ; *D. Fry*. Max meadows below Winscombe. Ditches near Yatton, and in the lowlands about Weston Junction. In a swamp near Worle Station, 3 feet high, 1907 ; *Rev. E. S. Marshall*. Draycott. Wedmore. Formerly abundant in the brackish marsh on Berrow sands. Brean and Burnham ; *Fl. Som.* Easton Moor ; *Miss Livett*. Ashcot peat moor. Midford ; *Herb. Flower*. "Decidedly rare about Bath ;" *Rev. L. Jenyns*, traversing the statement in *Fl. Bathon*., that the plant was "frequent in watery places."

## PLUMBAGINACEÆ.

### LIMONIUM *Mill.*

#### 773. *L. vulgare* Mill. *Statice Limonium* L. *Great Sea Lavender*.

Native ; on muddy shores of the tidal estuaries ; local. July to September.

**G.** A few plants on the mud at Avonmouth until 1891 ; none seen since. Severn shore south of Berkeley ; *V. R. Perkins*.



**S.** Salt-marsh near the Battery Point, Portishead; *Misses Cundall*. Now lost. Clevedon; *Herb. Stephens*. Abundant on the shore near Salthouse, Clevedon; *D. Fry*. Mud-flats near Woodspring Priory, at one time in plenty, but in diminishing quantity of late through proximity of golf links, which come down there to high-water mark. Salt-marsh below Uphill; *Rev. E. S. Marshall*. Very sparingly in the Berrow sand-marsh, 1881. Mud-flats skirting the seabank of the Brue between Burnham and Highbridge, abundant.

The Great Sea Lavender is a variable plant, both as regards leaves and flower-scapes. Local conditions of moisture and exposure often alter its appearance, and cause certain peculiarities of development. A tall and luxuriant form was distinguished by Syme as *VAR. pyramidalis*, but there is practically no feature save size by which it can be recognized. Syme himself stated that it "differed from the ordinary form merely in luxuriance, and the more luxuriant the plant is, the more lax and pyramidal the panicle becomes." The "variety" has been repeatedly reported to me from our N. Somerset coast. See *Notes on Limonium*, by C. E. Salmon in *Journ. Bot.* 1905, p. 6.

**774. L. binervosum** C. E. Salmon. *Statice binervosa* G.E. Sm. *S. occidentalis* Lloyd. *S. auriculæfolia* Vahl, in *Fl. Som.* Lesser Sea Lavender.

Native; on rocks by the sea; very rare. Probably lost from the mainland.

July to September.

Many of the following notes, relating to observations of this plant in North Somerset by bygone botanists, were given me by Mr. C. E. Salmon, who kindly extracted them from material collected for his Monograph.

**S.** "Over against Weston on a rock in the Sea called Night Stone grows a small kind of *Limonium*, *foliis oblongis* (an Oleæ). An *varietas tantum vulgaris*;" July 18, 1726—*Dillenius' Diary* and *Herb.* The earliest record for Somerset. Night Stone; *Herb. Sherard* at Oxford. Rocks on Birnbeck Island; *St. Brody, Fl. Weston* (1856). Weston-super-Mare, 1850; *F. J. A. Hort* in *Herb. Syme. Ibid.* 1869; *H. F. Parsons* and *F. J. Hanbury*. Worle Hill, 1830; *W. Christy* in *Herb. Watson*. Brean Down; *T. B. Flower* in *Herb. Watson*. Steep Holm, July, 1773; *Banks and Lightfoot. Ibid.* 1832; *Thos. Clark* in *Herb. Thompson. Ibid.* 1836; *Herb. Borrer* at Kew. *Ibid.* 1876; *T. B. Flower* in *Herb. Brit. Mus.*

No doubt *L. binervosum* still exists upon the Holm, but I knew nothing of its survival elsewhere in this district before 1896, when Mrs. Gregory discovered four or five strong plants on Birnbeck Island, Weston-super-Mare; Dr. St. Brody's old station. Their situation was exceedingly precarious, alongside structures, erected for the diversion of visitors, that crowd every yard of space on that small area; and on looking for the plant at the spot some years later I could see no trace of it.

Burnham; extremely scarce. In 1905 Mr. H. S. Thompson wrote me that he had found in his first collection, not consulted for many years, an undoubted specimen of *L. binervosum*, gathered July, 1885, on the sea-bank at or near the mouth of the Brue. In 1906 Mr. Thompson reported that he could not refind his plant at Burnham owing, as he believed, to the reconstruction of the

sea-wall. The Rev. E. S. Marshall, in 1907, saw a barren plant belonging, he thought, to this species, on the left bank of the Brue close to its confluence with the Parret. "Stert Island, growing on thin sand over mud in the company of plants typical of the dune marsh," 1902; *Dr. C. E. Moss*. Possibly an introduction from the Welsh coast, as it had not been remarked by myself and other observers on earlier examinations of the island.

Mr. Salmon has placed Birnbeck Island among the localities yielding *var. procerum* C. E. Salmon, a segregate which includes (*pro parte*) Syme's  $\beta$  *intermedia* of *Engl. Bot.* ed. iii. See *Journ. Bot.* 1907, p. 24.

A form of *L. vulgare*, approaching that now called *var. pyramidale* Druce, on the Burnham mud-flats, has been several times mistaken for *L. binervosum* and reported to me as such.

### STATICE *Linn.*

#### 775. *S. maritima* Mill. *Armeria maritima* Boiss. Thrift.

Native; on the turfy margins of salt-marshes by the tidal waters; and on rock, as at Brean Down and Sand Point. Very local, and far scarcer than formerly. May to August.

**G.** New Passage, 1866; *Herb. St. Brody*. Still frequent on the flats between the Old and New Passages. In 1900 there were a few survivors on shingle a short distance below the Tunnel. Those have now gone. Lower down the Severn, on the broken turfy edge of a small "pill," Mr. Bucknall and I noticed one or two roots in 1906, and I believe some plants still remain near the shore two or three miles above Avonmouth. Thirty years ago we had Thrift on the river-bank nearly as far up as Shirehampton Ferry. The wash of excursion steamers has destroyed most of it, and now I fear it has entirely disappeared from the Avon estuary and from Swete's five-mile limit.

**S.** Clevedon, in some plenty; *D. Fry*. A few small tufts in the salt-marsh by St. Thomas' Head; Aug. 1907. Sand Point. Weston-super-Mare. Brean Down. Salt-marsh near Burnham.

Thrift has been stated to grow on Mendip near Cheddar; and Dr. H. F. Parsons, in his *Flora of the Eastern Border of Somerset*, said he found it:—"In a stony field near Great Elm, on inferior oolite, where it is established in some plenty; but may have been carried thither with garden rubbish."

## PLANTAGINACEÆ.

### PLANTAGO *Linn.*

#### 776. *P. Coronopus* L. *Buck's horn Plantain*.

Native; in barren, sandy spots along the coast; and on similar, but elevated, ground inland, *e.g.* St. Vincent's Rocks, Brandon Hill, Trooper's Hill, Frenchay Common and the Mendips. Rather local, but too frequent to need a list of



localities, and usually abundant wherever it occurs. Rare, however, about Bath, and in the counties of Wilts and Hereford. June to September.

[*P. Serraria* L.

A Mediterranean plant, hitherto supposed to be confined practically to Southern Spain and Italy. Unknown in France. It has been admitted to the British Flora by Mr. F. N. Williams (*Prodr. Fl. Brit.*, part 7, 1910) on a specimen from Steep Holm in the Bristol Channel. Mr. Bucknall and I have searched for it on Brean Down, where are some broad-leaved forms of *P. Coronopus*, but we found nothing that would do for *P. Serraria*.]

**777. *P. maritima* L. Sea Plantain.**

Native; on mud-flats by the tidal waters; common as a rule in such situations, but is not so partial to the exposed Channel coast. June to September.

First local record:—"The greater and lesser Sea Plantaine with grassie leaves. I have it confidently affirmed that both the lesser and greater sorts grow neare the sea side in the West parts of the land, namely in all the tracts of the Marshes neere *Ast Ferry in Gloucestershire*."—*Parkinson, Theatr. Bot.* p. 500 (1640). *Parkinson's* two figures appear to represent merely two states of *P. maritima*.

Swellings on the flower-stalks of this plant, noticed at Rownham Ferry by Miss Roper, and on the Severn bank by myself, were found to be the galls of a weevil—*Mecinus collaris*—a rare insect which has been reported upon *P. Coronopus* in the East of England. The larvæ, sometimes three in a stem, tunnel their way above and below the point of entrance, and "are often found to contain a parasitic chalcid (*Micromelus pyrrhogaster*)."—*H. J. Charbonnier*.

**778. *P. lanceolata* L. Ribwort. Rib-grass.**

Native; in meadows, pastures and the turf on waysides; everywhere common. May to September.

A curious proliferous form or monstrosity, with several heads and leafy bracts upon the scape, is of rare occurrence. I found one on a railway bank at Montpelier Station many years ago; and another at Avonmouth in 1900. The latter had developed a tuft of leaves at the top of its spikes. In 1905, on waste ground in St. Philip's Marsh, Bristol, there were two large plants each with several scapes. On one plant a single scape only bore an umbel of five or six heads: on the other all the stalks were similarly monstrous. A "rose" variation of this species was noticed by Miss Roper at Stoke Bishop in 1903.

[*P. Timbali* Jord. A casual weed, apparently not indigenous, found occasionally in crops of sown grasses, clover, etc. It is a large, tufted plant, with heads of a silvery-white appearance from the nature of the scarious bracts.]

[*P. Lagopus* L.

Casual in Portishead Station-yard, S. 1907! *Miss Roper*. And on a fowl run under Ashley Hill, G. in 1911.]

**779. *P. media* L. Lamb's-tongue. Honey Plantain.**

Native; on the sunny slopes of old pastures, dry open hedgebanks, and roadside turf. Quite common and abundant throughout the district.

June to September.

The status of *P. media* with us differs surprisingly from that ascribed to it in the parts of South Devon and East Cornwall contiguous to Plymouth, where

Mr. Archer Briggs found it to be very rare, and seldom indigenous even in the few localities known to him. Except in North Britain it appears to rank generally with the commoner and more widely distributed species of the country.

**780. *P. major* L. Greater Plantain. Way-bread.**

Native ; on roadsides, waste ground and field borders ; very common.

June to September.

This weed is subject to malformation of the inflorescence, in varying forms and of more or less rarity. Of these Schlechtendal enumerates five kinds ; some of which are permanent in cultivation. Two only have come under my notice in the wild state. (1) This occurred on both sides of the way in the Cheddar and Wedmore road a short distance south of Shipham on Mendip, in 1906. The plants bore either one, two, or three subrotund leaves, about  $1\frac{1}{2}$  inches in diameter with a flower in the axil of each, upon the scape a short distance below the spike, which presented no other peculiarity. I judged these leaves to be foliaceous bracts, and find that Dr. Maxwell Masters speaks of such bracteate developments as being frequent with *P. major*. In the *Flora of Hampshire*, ed. ii, a precisely similar observation is recorded from Brookwood by Mr. Pryor. (2) A variation akin to that described by Masters (p. 108) as "roseate ; bracts leafy in tufts or rosettes, without flowers, as in the so-called Rose Plantain, common in old-fashioned gardens in this country." One plant of this, with four or five stems all similarly affected, was growing under a wall near the top of North Road, Bath ; Sept. 1910 ; in association with and under the same conditions as a number of other plantains, all of which were normal. Each scape bore at the summit, instead of the usual spike, a close tuft or umbel of some thirty leaves of varying sizes. Examination showed, however, that some of these had a fruit in the axil : it was evident therefore that they were in reality monstrously developed bracts, brought into close apposition by a suppression of the internodes. Consequently this does not fit into that "class of cases wherein there is a complete substitution of one structure for another without any indication of transition between the two, or admixture of flower-buds with the leaves" as suggested in *Vegetable Teratology*, p. 165. The fact that, as I am informed, the sport known as Rose Plantain can be reproduced by seed, makes the point abundantly clear.

The name "Way-bread" is of uncertain meaning or derivation, and is probably a corruption. Mr. Purchas (*Fl. Heref.*) mentions that in Staffordshire the plant is called "Way-broad," which suggests a shortening of some such description as "Broad-leaved wayside."

"Fire-leaves is the name given in Gloucestershire to Plantain leaves, more especially to those of *P. media*. The farmer selects some from the hay and violently twists them to ascertain if water can be squeezed out. If so, the amount of moisture in newly carried hay is thought sufficient to induce heat and fermentation enough to fire the rick."—*Gardener's Chron.* 1860, p. 738.

**[*P. arenaria* W. & K.**

Alien. A native of Southern Europe in the Mediterranean area, extending northward as a waste-ground weed through France to the western departments of Belgium and the Rhineland.

July to October.



**G.** In fair quantity for several years (1880 to 1884) with other aliens on a heap of old colliery rubble near Mount Hill, Kingswood. On a tip in St. Philip's Marsh, Bristol, July, 1904.

**S.** In 1860 Mr. H. C. Watson sent a packet of specimens, gathered the previous year, to the Thirsk Botanical Exchange Club with the following note.—“*Plantago arenaria* is now seen in hundreds on the sand-hills of the Somerset coast. I believe Mr. Clark was the discoverer, and he thinks the plant was imported with Lucerne seeds.” Burnham sand-hills, near the Lighthouse, 1859; *Herb. Clark. Ibid.* 1867; *Herb. Flower.* It is remarkable that the plant, having strongly established itself and held the ground for ten years or so, should have entirely disappeared within a comparatively short time. I do not know that it has been reported from Burnham since Flower gathered it.

Three or four plants in a stony warren among furze and bracken (cottages and poultry not far off) near the top of West Hill, Wraxall, Sept. 1910.

The branching habit and verticillate stem-leaves of *P. arenaria* separate it widely from British Plantains. It is unmentioned in some county floras, while others contain but a single record, showing the plant to be of rare occurrence in this country. For that reason, I suppose, it is now excluded from the *London Catalogue*.]

### LITTORELLA Berg.

**781. *L. juncea* Berg. *L. lacustris* L. *L. uniflora* Aschers. Shore-weed.**

Native; on the margin of peaty pools, or submerged in wet seasons; very rare. July to September.

**S.** “On the moist fenny ground about Glastenbury.”—*Ray, Cat.* p. 169 (1670). Burnham flats, Sept. 1895; *Miss Coote in Herb. Dunn.* Blackdown, three miles from Cheddar, a dried pool full of it; *Miss Mules*! MS. note by the author of *Fl. Som.* comm. *Miss Livett.* The note is undated. *Miss Mules* died in 1904. In August, 1907, the plant—not flowering—was detected in doubtless the same pool, then full of water, by Mr. C. E. Salmon; *Journ. Bot.* 1908, p. 265. On my visit to Blackdown in July, 1908, the pool was practically dry and several plants of *Littorella*, among many barren ones, were flowering on the margin.

In reply to inquiry made by letter in 1908, soon after her specimen was noticed in Mr. Dunn's collection, *Miss Coote* expressed her belief that the spot where her plant grew was between Burnham and the Lighthouses, but she could not remember the exact locality. Not knowing at the time that any interest attached to the gathering, the circumstance was not impressed on her mind. It is probable that the place was by a pond near the shore where *Blysmus compressus* grew, and which is now enclosed.

The recent discovery of this species in the above localities affords another proof of the length of time an inconspicuous plant may remain overlooked, even in a tract where there has been a considerable amount of botanical investigation.

## MONOCHLAMYDEÆ.

### [AMARANTACEÆ.]

#### AMARANTUS Linn.]

##### [*A. Blitum* L.]

Casual. On an embankment of the new road (Ashton Avenue) near Ashton Gate, Oct. 1906! *C. Alden.* And on Wapping Wharf, Bristol Harbour, 1911! *Miss Roper.*]

##### [*A. retroflexus* L.]

Casual. Very fine and abundant on made ground in St. Philip's Marsh, G.; 1900 to 1910. And on corn-mill refuse in Portishead Station-yard, S. for about the same period.]

[*A. deflexus* L.

Casual; associated with the last species.]

[*A. albus* L.Casual. On waste ground, Portishead; *Miss Livett*.]

Many of these *Amaranth*s are fine handsome plants of distinctly tropical aspect. They arrived from America and the East during the eighteenth century. While some of the tribe were received into English greenhouses and were soon known as Cockscóms, Prince's Feathers and Globe *Amaranth*s; others settled down as weeds about our docks and railways, and became more or less established on rich waste land throughout the warmer European countries. "*Amaranth*s are largely used as food-grains in India and tropical Africa."—*J. G. Baker*. Syme lays it down that the almost universal spelling "*Amaranthus*" is incorrect; the "h" having crept in through an erroneous supposition that the name was derived from *avθoc*, a flower.

## CHENOPODIACEÆ.

## LERCHIA Hall.

782. *L. maritima* O. Kuntze. *Suæda maritima* Forsk. *Dondia* Druce. *Sea-Blite*.

Native; about all the muddy estuaries and salt-marshes of the district in both counties. On the Avon I have seen it as high up as the Black Rock, G. July to October.

Earliest local record:—"Chenopodium maritimum. In arenosis ad Sabrinam circa Bristoliam." 1780; *Dr. J. Sibthorp*.

[*L. obtusifolia* Steud. *Suæda fruticosa* Forsk. *Schoberia* Mey. *Shrubby Sea-Blite*.

Connected with the county of Bristol solely by a reported gathering on the Steep Holm by *Lobelius*, *Adversaria* p. 162 (1570); which is almost certainly a mistake. The plant is known only in the Bristol Channel on the Glamorganshire coast.]

## SALSOLA Linn.

783. *S. Kali* L. *Saltwort*.

Native; on sandy sea shores. Local and rather rare. August and September.

**G.** On the shore, New Passage, July, 1870; *Herb. St. Brody*. Now lost. I have never seen the plant in Gloucestershire.

**S.** Portishead; one plant on the south side of the Dock, Oct. 1906. Kewstoke Bay. Weston-super-Mare. Brean. Berrow. Burnham.

VAR. **Tragus** DC. = *S. calvenscens* Grenier. A glabrous form.

**G.** Casual at St. Philip's, Bristol! Oct. 1911.

The *Saltwort* is a fleshy species, able to flourish in full exposure. It grows as a rule singly among strand plants that form a fringe along the foreshore at high-water mark.



[*Roubieva multifida* Moq. *Chenopodium multifidum* L.

Casual. A large patch by the water's edge at the upper end of Portishead Dock, 1905 to 1908. Introduced from the goods sidings hard by. A South American species recorded for Peru, Quillota, Buenos Ayres, etc., and introduced into Portugal, France and elsewhere in Southern Europe. There is a description in the *Flore de France* by Grenier et Godron, who say that the plant is common on the *glacis* at Toulon, whence I have a recent specimen. St. Brody got it by the Gloucester Docks many years ago; and Riddelsdell mentions its occurrence at Cardiff.]

## CHENOPODIUM Linn.

### 784. *C. Vulvaria* L. *C. olidum* Curtis. *Stinking Goose-foot*.

Native or Colonist; in waste places near houses or by the Channel. Very rare. August to October.

**G.** On waste ground near the Feeder Canal, St. Philip's, Bristol, Aug. 1910, and again in 1911; very fine but in small quantity. This is, I believe, the first recorded instance of the plant's occurrence in the county of Gloucester. One plant on a fowl run by Baptist Mills, 1911!

**S.** Bath; on waste ground, not very frequent; *Fl. Bathon.* (1834). By the Gas Works at Bath; *F. Inman* in *Fl. Bathon. Suppl.* (1839). Bath; under the walls of the Gas Works and adjoining walls, not very plentiful, Sept. 1886; *D. Fry*. This is Babington's habitat. The plant was more abundant in 1894, and I saw it again in fair quantity in October, 1896. Casual near Twerton, 1897; *S. T. Dunn*. About a dozen fine plants on refuse in Portishead Station-yard, 1906; and again in four succeeding years. About Bream and Berrow; *T. B. Flower* in *litt.* Berrow sands, July, 1849; *Herb. Flower*. Burnham; *Miss Mayow*.

"I should suppose from Babington's description that when he found the plant it grew, as it does still, rather sparingly; and it is curious to find it thus tenaciously holding its own on the very limited area it occupies. It occurs almost exclusively close to the Gas Works, the stench from which harmonizes well with the unutterably fetid odour of the plant. This Goose-foot certainly does not flourish beyond stink-shot from the purifiers of the Works!"—*D. Fry*, 1886.

Johnson's reference to this plant: "*Atriplex olida* . . . *juxta semitas in suburbiis*." *Merc. Bot.* p. 22, may well have related to its occurrence at Bath, where the writer had been some time in residence.

### 785. *C. polyspermum* L. *Many-seeded Goose-foot*.

Native or Colonist; in cultivated and waste ground; rare.

August and September.

**G.** Garden weed at Kingsdown, Bristol, 1844; *G. H. K. Thwaites* in *Herb. Stephens*. Henbury; *Miss Powell*. Kingsweston, 1911! On waste ground in St. Philip's Marsh. Almondsbury. Abundant in cultivations and here and there by the roadside, between Charfield and Stone, 1895.

**S.** Roman Camp, Leigh Down; *Miss Atwood* in *Sweete, Fl.* Garden weed at Knowle, 1884; *Rev. W. H. Painter*. Yatton; *Miss Winter* and *W. E. Green*. Corston; *D. Fry*. Congresbury, 1896. Field above Cheddar village; *J. G.*

*Baker in Fl. Som.* Worle and Weston-super-Mare; *St. Brody* and *T. B. Flower*. In the garden at Whatley Rectory; *Rev. S. Laing*. One large plant by the roadside on Aller Moor near Mudgley, Aug. 1905. Turf moor, Edington, (*cymosum*) 1836; and turf moor, (*spicatum*) 1862; *Herb. Clark*. Catecott Burtle, 1889. Waste ground, Wells, 1884; *Miss Livett*.

The plants of this district met with by me have not appeared referable with certainty to either of the two forms (*spicatum* and *cymosum*) which make up the aggregate. In their extreme states these are said to be very distinct from each other, but doubtless they are connected by a series of intermediates.

[*C. ambrosioides* L.

Alien. Fowl run, Baptist Mills, G., 1911! *Miss Roper*. Several patches on cinder heaps by the river-bank at Twerton-on-Avon, Bath, 1896; *S. T. Dunn*.]

### 786. *C. urbicum* L. Upright Goose-foot.

Native or Colonist; on cultivated or waste land; very rare.

August and September.

**G.** Near Bristol; *Worsley Cat.* in *New Bot. G.* One large plant on cultivated land by the Avon under Sneyd Park, Sept. 1893.

**S.** Several plants on house refuse brought from Bath and deposited by the Avon at Newton St. Loe, 1892; *D. Fry*. About half a dozen were observed on neglected garden ground at Bath in 1893 by Mr. A. E. Burr, who showed me his specimens. "On waste and cultivated ground, frequent;" *Fl. Bathon*. But that was evidently one of Babington's looser statements. Weston-super-Mare! *T. B. Flower* in *Herb. Boswell*. Edington Burtle, 1836; *Herb. Clark*.

Mr. Murray thought that little reliance could be placed on many of his Somerset records for this Goose-foot; and without doubt *C. rubrum* has often been confused with *C. urbicum*. "Indeed few botanists appear able to name the *Chenopodia* correctly."—*H. C. Watson*. However, one strong character at least is easy to lay hold of, *viz.*, that while the seeds of *C. rubrum* are minute, those of *C. urbicum* are "almost as large as Rape-seed."

### 787. *C. album* L. White Goose-foot. Fat Hen.

Native; in cultivated ground and waste places; a very common weed. Especially fine and abundant on manured arable land among late autumn crops of roots, potatoes, etc., where plants of *VAR. paganum* may reach a height of over four feet.

July to October.

An unusual but well-marked form grew abundantly on dust-heaps by the Avon at Twerton, Bath, in Oct. 1896 and the year following. It occurred also on similar ground in St. Philip's Marsh, Bristol, in 1905; and about the same time was sent to Mr. D. Fry from Weston-super-Mare by Miss Peck. This was a firm, bushy plant of from two to two and a half feet, with long spreading branches. Stems stout, reddish-striate; foliage dull dark green; leaves long-stalked, mostly elliptic, entire, blunt; a few irregularly angled and toothed. Inflorescence of densely aggregated glomerules in shortly branched spiciform panicles, leafy in bud, becoming naked in fruit. I found that Herr Freyn had named a similar plant, collected near Oxford by Mr. Druce in 1892, *C. album* L.



VAR. *glomerulosum* Reichb. forma *viridis*, nec *cinerascens*; and this name was confirmed for my Twerton gathering by Prof. Sagorski.

In their extreme states the four forms which make up this aggregate are so distinct that it is not surprising that the respective authors of the names *candicans*, *viride* and *paganum* should have considered their plants to be separate species. All of them, however, are connected by a series of forms shading or grading one into another. They are therefore more wisely classed as varieties under *C. album*. By far the greater bulk of these weeds in our fields and waste grounds near Bristol belong to the intermediates, and cannot be named distinctively. I think that good *paganum* is decidedly more frequent with us than good *candicans* or good *viride*; their abundance being in the order named.

### 788. *C. opulifolium* Schrader.

Alien or Colonist; on roadsides, dustheaps, and waste ground; rather rare.  
August to October.

**G.** On dredgings deposited in the Black Rock Quarry, 1884. St. Philip's Marsh, Bristol, on made ground, 1900 and subsequently. A large plant on a dustheap by Oldbury Court Road, Fishponds, Oct. 1896. Several plants in an allotment and on a waste tip at Baptist Mills, 1911. Eight or ten plants on newly made ground by the Avon below Shirehampton Ferry, Oct. 1906. About a dozen strong ones on a waste spot by the roadside between Hambrook and Northwoods, at the corner of a green lane leading towards Winterbourne Church, 1907. Several on a huge waste heap by the Avon in Bitton parish, 1894; still there in several spots, 1896 and 1897.

**S.** Waste ground by Portishead Station, 1900 to 1906. A large patch of plants on a heap of house refuse barged from Bath to the river-bank at Newton St. Loe, 1893! *D. Fry*. Abundant on dustheaps near the Gas Works below Bath, 1895 and 1897. Midford, 1909.

This looks like a modern introduction, now becoming increasingly frequent. But it may formerly have been confused with *C. album* and so overlooked. At present its status with us is much the same as that of *urbicum*, *ficifolium* or *murale*.

### 789. *C. ficifolium* Sm. *C. serotinum* L. Fig-leaved Goose-foot.

Native or Colonist; on cultivated and waste land, manure and refuse heaps; rare.  
August to October.

**G.** One plant by the old water-cress beds, then being destroyed, Baptist Mills, 1902. Warmley, on a roadside, 1904. On a heap at Wotton-under-Edge, 1907; *C. Bucknall*. Manure heap at Coaley Junction! 1906; *Miss Roper*. Near Bristol; *Worsley Cat*.; *New Bot. G.*

**S.** Waste ground by Portishead Pill, 1900 to 1907. As a garden weed at Clevedon; *D. Fry*. Weston-super-Mare; *Miss Peck*. By a cowshed on the coast at Brean! 1907; *C. E. Salmon*. Waste ground near Twerton-on-Avon, 1902. A patch of about fifty plants at the base of a refuse heap by the Avon below Bath, Oct. 1896. Edington Burtle, 1836; *Herb. Clark*. Near Shapwick railway station, 1892; *Fl. Som*. Peat moor, Shapwick, 1902.

**790. *C. murale* L.** *Sowbane. Nettle-leaved Goose-foot.*

Native or Colonist; on waste ground and manure heaps, nearly always by houses; rare. August to November.

**G.** Abundant on city refuse tipped in St. Philip's Marsh, 1906 to 1910. Seabanks near the glass houses, Bristol; *Winch* add. in *New Bot. G. Crew's Hole*; *Herb. Stephens*; and (in 1885); *D. Fry*. Waste ground, Bristol; *G. H. K. Thwaites* in *Sweete, Fl.*

**S.** Farm-yard at Failand in plenty, 1878. Yatton and Milton; *D. Fry*. Waste ground about Weston-super-Mare, 1843; *G. S. Gibson*; *St. Brody, Fl. Weston* (1856); *T. B. Flower* in 1880; and, in 1905; *Miss Peck*. By the sidings in Portishead Station-yard, yearly from 1900 to the present time. Uphill; and near buildings under Brean Down, 1888; *Mrs. Gregory*. Still at the latter spot in 1905 and 1911! In a pound at Bleadon, 1886! *Mrs. Gregory*. Roadside waste at Berrow, 1900. Edington Burtle, 1836; *Herb. Clark*. Twerton; *H. F. Parsons*. Under walls by the Avon below Bath; *L. Blomefield* in *Fl. Som.* A good many plants under walls near the Bath Gas Works, 1894; *S. T. Dunn* and *D. Fry*. A few there in 1896!

**791. *C. hybridum* L.** *Maple-leaved Goose-foot.*

Casual or Colonist; on cultivated and waste ground; very rare and sporadic. August to October.

**G.** On dredgings from the bed of the Avon deposited in the Black Rock Quarry under Sea Walls, Sept. 1883. *Crew's Hole*; *Herb. Stephens* and *Herb. St. Brody*; no date with either specimen. *Crew's Hole*; *G. H. K. Thwaites* in *Sweete, Fl.* Near Bristol; *Worsley Cat.*; *New Bot. G.* One plant in St. Philip's Marsh, 1911! *C. Bucknall*.

**S.** Garden weed at Corston, 1896; *D. Fry*. Weston-super-Mare; *St. Brody*. Formerly at Beckington; *H. F. Parsons* in *Fl. Som.* Bath; on rubbish and waste ground, plentiful in three different places in 1892; *A. E. Burr* and *D. Fry*.

**792. *C. rubrum* L.** *Red Goose-foot.*

Native; on rich waste spots both inland and on the coast; but particularly partial to manure heaps in the lowlands, and recently broken ground about salt-marshes. Locally plentiful. August to October.

**G.** Bank of Avon under Cook's Folly; *Herb. Stephens*. Still thereabout in marsh that is sometimes flooded. Abundant for a time (1883, etc.) on dredgings deposited in the Black Rock Quarry. St. Philip's Marsh, in great plenty for some years on the damper spots while the ground was being filled in; and it still continues in smaller quantity. On tipped rubbish and made ground near the Frome in the Stapleton Road district. Baptist Mills. Damp roadside wastes and dung-hills about Hallen, Pilning, Aust, the Passages, Hill and Rockhampton.

**S.** Sheephouse Farm and St. George's Wharf; on muddy margins of the salt-marshes. Plentiful on roadsides about Norton Hautville and Chew Magna;



*D. Fry*. Portbury. Portishead Pill and Lake. Yatton and Clevedon; *W. E. Green*. Cheddar; *J. G. Baker*, and Winscombe; *W. F. Miller*, in *Fl. Som.* Frequent along the coast from Brean, Berrow and Burnham, to Brent Knoll and Highbridge. Very abundant at one time (1894-1900) in hollows of the huge dust-heaps which formerly stood by the Avon below Bath. Dung-hills and waste ground, frequent; *Fl. Bathon*.

Plants about byres and old dung-hills are usually very luxuriant; but on poor salt-marsh ground they sometimes run down in stature to a few inches, and have a branched, spreading habit. These diminutive specimens may come under the *VAR. pseudo-botryodes* Watson, which seems to be only a dwarf state dependent on deficient nutriment. Dr. Bromfield stated (*Phytol.* III, p. 751) that its seeds, when sown in a garden, produced the typical erect form of this species.

[*C. glaucum* L. Oak-leaved Goose-foot.

Reported by C. E. Moss, D.Sc., as occurring sparingly, in 1904 and 1906, on coast shingle and alluvium south of Brean Down; about thirty plants being observed on the second occasion along a space of three or four hundred yards. Dr. Moss, unfortunately, did not preserve a specimen; and those of us who have searched for the plant recently have failed to find it. I trust the record may be verified later. I am disposed to accept it, but for the present it seems wiser to hold it in abeyance.

As one of the rarest British Chenopods, seldom met with away from a few eastern counties, and always scarce and uncertain in its localities, this would be a most interesting addition to our catalogue. And the more so, I think, as where reported by Dr. Moss the plant must associate solely with native coast species, and not with weeds of cultivation on rich waste ground, which is the situation commonly ascribed to it by authors. I can find no other modern record for *C. glaucum* in the south-west of England.]

**793. *C. Bonus-Henricus* L.** *Allgood. Wild Spinach. Good King Henry.*

Denizen; in waste grassy places, never far from farms or villages; frequent. Thinly distributed, there being seldom much at a spot, although it holds on well wherever it may have become established. May to August.

**G.** Black Rock Quarry, 1883. Crew's Hole; *Herb. Stephens*. Roadside near Downend, 1850; *Herb. Cundall*. Winterbourne Down, 1905 and 1911. Thornbury Castle; *Herb. Powell*. Wyck; *Fl. Bathon*. Frampton Cotterell, 1904; *Miss Roper*. Iron Acton, 1910. By the Yate Road at the entrance to Chipping Sodbury; *Misses Cundall*. Tortworth. Roadside bank by a farm at Hawkesbury; and again at the top of the hill close to Hawkesbury Upton. Wotton-under-Edge; *V. R. Perkins*. The Rockies, Stone; *Gertrude Webb*.

**S.** Yatton; *Miss Winter*. Abundant in a croft on Bourton Farm, between Cross and Compton Bishop. Roadside between Churchill and Rowberrow. Cheddar village, in several spots. Grassy waysides at Priddy on Mendip. By farms at Kewstoke and Weston-super-Mare; *Mrs. Gregory*. Weston-super-Mare; *St. Brody*. Englishcombe; Cranmore; and Wookey village; *Fl. Som.* Murdercombe, near Mells, 1907. Wells; *Miss Livett*. Frequent about farms near Bath; *Miss Martin*. Swainswick, Charcombe, etc.; *Fl. Bathon*.

Like some other plants of this order, Wild Spinach has been widely cultivated as an esculent, and has not long disappeared from gardens. Its use seems to have been practically universal throughout European countries. Ray, in the seventeenth century, praised it as "an excellent Sallet," to be boiled in water

or broth and eaten with butter and salt, in the same way as Hop, Spinach or Asparagus. In the upper valleys of France, Switzerland and Austria it occurs nearly everywhere by waysides and dwellings, following man's steps up to the highest chalets and huts of the climbers, both in the Alps and Pyrenees. Withering's statement that cattle and sheep are not fond of it may have some foundation, for the shoots usually flower well with us if left alone by roadmen, and a mountain Rambler notices that even goats on southern hillsides do not always crop it close. Cows in the Alps, however, eat it freely when green food is scarce. The French and English popular names exactly correspond.

### BETA Linn.

#### 794. *B. maritima* L. *Sea-Beet.*

Native; on banks of the estuaries, and on the open shore of the Bristol Channel; locally common. July to October.

**G.** Bank of Avon as far up as the Black Rock: and on the Severn near New Passage.

**S.** One plant by the Avon at Saltford, 1900; *D. Fry*. Portishead. Clevedon. Kewstoke. Plentiful along the coast from Brean Down to Burnham and Highbridge.

[*B. trigyna* Waldest. & Kit.

Casual. Some fine plants of this very handsome species have appeared at two spots in St. Philip's Marsh (1908 to 1911); on made ground certainly, yet on that part where no rubbish has been tipped for some years, and where native herbage has had time to lay the foundation of a rough pasture worth grazing and cutting for green fodder. The only other instance known to me of its occurrence in Britain is Mr. Druce's record in *Fl. Berks.* According to Nyman, it is of eastern origin, with Hungary and Transylvania for its nearest native land.]

### SALICORNIA Linn.

#### 795. *S. herbacea* L. *Glasswort. Marsh-Samphire.*

Native; on mud-flats by tidal waters. Frequent about all the estuaries and salt-water inlets. August to October.

Until recently the annual British Glassworts were all placed under the Linnean aggregate with one sole variety (*procumbens*). But the plants differ so widely and the variations appear to be so stable and well distributed, that this classification is no longer satisfactory; and it is probable that by separating the aggregate into groups—for which it is quite immaterial if absolute specific distinction be claimed or granted—we shall obtain better results. In the last edition of the *London Catalogue*, and in the later list of Mr. Claridge Druce, we find *S. herbacea* split up into six full species and one variety. The notes and personal instruction kindly imparted to me by the Rev. E. S. Marshall have made it possible to present an analysis of the Bristol *Salicorniæ* in manner following:—

VAR. **a.** *S. annua* Sm. = *S. stricta* Dum.

**G.** By the Avon below Shirehampton. Abundant on the muddy margin of the Severn Sea.



**S.** Extremely plentiful on Portbury Wharf (the mud-flats of King Road); *Dr. C. E. Moss*. Clevedon; by the mouth of the Land Yeo stream. Near the mouth of the Axe, Uphill; very characteristic, but by no means abundant in the area examined; *Rev. E. S. Marshall*. Mr. Marshall and I gathered this also at the confluence of the Brue and Parret in October, 1906. The plants were considered by my friend to be small and poor.

The figure of *a. aretaria* in *Engl. Bot.* ed. iii, is good *annua*.

VAR. **b. S. ramosissima** *Woods*.

**S.** Abundant near the mouth of the Axe, Uphill; and at Brean; *Rev. E. S. Marshall*. Fine, but rather scarce by the tidal Brue, Burnham! *Id.* Reported also from that part of the coast by *Dr. C. E. Moss*.

VAR. **c. S. procumbens** *Sm.*

**S.** On a drying-up bit of salt-marsh west of Pill; *Dr. C. E. Moss*. A little on the Brean side of the Axe, and in profusion on muddy ground near the Brue, between Burnham and Highbridge! *Rev. E. S. Marshall*.

I found that plants of *procumbens*, when dipped in boiling water for a few seconds and then pressed, stained the paper of a fine rose colour, distinctive from the more erect forms, whose juice is without character.

VAR. **d. S. appressa** *Dum.*

**S.** Sparingly in a small salt-marsh below Uphill, Sept. 1907. New for vice-co. 6. "Hitherto a more southern and south-eastern plant;" *Rev. E. S. Marshall*.

Glassworts form not merely the principal, but often the only vegetation that occurs on the mud-banks of our estuaries between the limits of neap tides, in a zone which is periodically inundated by the sea. A very large proportion of the seed produced must inevitably be carried away, but enough remains on the site to ensure a succession of these curious plants. They seldom or never crowd one another, as if competition for air and light were distasteful and to be avoided.

[**S. radicans** *Sm.* *Creeping Glasswort*.

Salt-marshes near Highbridge; *Sole* in *Bot. Guide* (1805). There is no confirmation of *Sole's* record, although his locality has been searched repeatedly.]

### ATRIplex *Linn. Orache*.

#### 796. **A. littoralis** *L.*

Native; on the shore of Bridgwater Bay; very rare. Now lost?

July to September.

**S.** Weston-super-Mare; *St. Brody* in *Robbins' Guide*. Two specimens gathered in 1889 at the mouth of the river Brue below Burnham by Mr. H. S. Thompson are in his herbarium. In Sept. 1906 Mr. Thompson reported that he could not refind the plant; owing, as he supposed, to the rebuilding of the sea-bank at the spot where it formerly grew.

**797. *A. angustifolia* Sm.** *Narrow-leaved Orache.*

Native; in cultivated land and rich waste ground; very common.

July to October.

**798. *A. erecta* Huds.**

Native; in cultivated and waste land; most frequently among crops. Common, but less abundant than the last, of which it is usually considered to be a variety, both being included under *A. patula* L. Fairly well distributed in both counties, but it has seemed to me especially frequent about farms on the Severn flats—the site of the Great Salt-marsh of former days—now better drained by the Severn Tunnel works and so more capable of carrying cereals.

July to October.

**799. *A. deltoidea* Bab.** *Triangular-leaved Orache.*

Native; on damp waste and cultivated ground. Rather common. It often springs up abundantly on alluvium near tidal water when the ground has been recently disturbed; and is conspicuous by its pale yellowish-green foliage and large triangular leaves.

August and September.

**G.** St. Philip's, Bristol; about the tips, etc., in varying quantity from year to year. Bank of Avon in various places: latterly plentiful on made ground below Shirehampton and about the Avonmouth Docks. Fishponds, Hanham and Kingswood; in cultivations. Potato-field between Damery Bridge and Falfield.

**G.** Sometimes abundant as a garden weed at Brislington. Keynsham. Sparingly between Pensford and Whitley Batch; *D. Fry*. Cultivated and waste ground by Portishead Pill. Clevedon; apparently constant. Brean. Burnham; under walls in the town and on the coast. Steart Island. Knowle Bridge near Wookey; *Miss Livett*. Potato ground, etc., on the peat moors.

**VAR. *prostrata* Bab.; *salina* Bab. Man.; and *triangularis* Bab. in *Engl. Bot.* ed. iii).**

A well-marked variety, frequent and characteristic on sea-sand and shingle. I have excellent specimens from Severn Beach, G.; and have seen it on the Somerset coast at Clevedon, Kewstoke Bay, and Brean. In 1883 it appeared in plenty on dredgings deposited in the Black Rock Quarry under Sea Walls; but, together with many other interesting plants of which I published an account, it soon died out.

**800. *A. hastata* L.** *A. Smithii* Syme. *A. patula* Sm. (non L.). *Halbert-leaved Orache.*

Native; in the same situations as the last and about sea-sands and salt-marshes; common.

July to November.

The fleshy, straggling coast or tidal-river form of this species is met with along the whole seaboard of the district. It occurs here and there abundantly by the tidal Avon, and on the Severn flats below Berkeley, especially on the banks of drains or rhines which intersect the salt-marshes. On the open sands of North Somerset it forms, either alone or with *Cakile* and *Salsola*, a fringe along the foreshore at high-water mark.



[*A. microsperma* W. & K.

"On waste ground near Bath;" *Babington* in *Fl. Bathon. Suppl. and Trans. Bot. Soc.* vol. 1 (1840).

In his *Monograph of the British Atriplices, loc. cit.*, Babington described this Hungarian species as occurring in England, stating that "our plant agrees exactly with the figure given by Waldstein and Kitabel." The leaves and perianths as shown in his own illustration differ somewhat from those figured for *patula* or *deltoides*, but I presume that, later, the plant in question was found to be indistinguishable; for nothing more seems to have been heard of it. Mr. Jos. Woods, in a paper read before the Linnean Society in 1849, received Babington's conclusion on this head very doubtfully. He himself knew nothing of *microsperma*. The name is given as a synonym of *deltoides* by Hooker and Arnott in their *Brit. Flora* ed. viii. (1860).]

### 801. *A. Babingtonii* Woods.

Native; on the coast; locally common. It ascends the estuaries of the Avon, Axe and Yeo to a considerable distance; growing in thin turf of the sea-banks and adjacent salt marsh. Such plants are commonly smaller and more variable than those one finds on sand and shingle of the open shores. There is often trouble in separating the obscurer forms from untypical *hastata*.

August to October.

**G.** Avon bank below Sneyd Park. Avonmouth. Severn Beach. New Passage. Sheperdine.

**S.** Side of a pit by the old brick works near Nailsea Station, 1905; *Miss Livett*. Portishead, 1890, very characteristic. Kewstoke Bay, 1892 and subsequently. The Bleadon Level. Wick St. Lawrence. Sands to the south of Weston-super-Mare. Uphill marshes, 1894. Brean. Burnham.

#### VAR. *virescens* Lange.

A luxuriant dark-green fleshy plant, with leaves up to three inches in length, and perianths more than half an inch across; growing on clay or alluvium. Surprisingly different from the small, stiff, hoary *Babingtonii* of beaches and sand-banks. A fine crop of this form came up some years ago in a marshy spot, sometimes inundated, between the railway and the river under Sneyd Park, after some cottages and pigsties had been removed and an attempt made to drain and utilize the ground. Quite recently it has occurred on made ground by the Avon below Shirehampton.

### 802. *A. laciniata* L. *A. arenaria* Woods. *A. jarinosa* Dum.

*Frosted Sea Orache.*

Native; on sea sand; extremely rare.

August to October.

**S.** On the sea-coast near the mouth of the Parret, Burnham, and Steart; *J. C. Collins, MSS.* in *New B. G.* Reported also from the N. Somerset coast by Dr. St. Brody. No specimen being extant, these records met with little credence and were not accepted by the author of *Fl. Som.* It was not until 1906 that the plant was rediscovered at Burnham by the Rev. E. S. Marshall, (*Journ. Bot.* 1907, p. 224). Under his guidance I had the pleasure of seeing ten or a dozen plants confined to about a sq. yard of sand. Messrs. Marshall and Salmon have found it too on the coast west of Steart, so that Collins' old record has been amply confirmed.

At one of the Bath Flower Shows, in 1903, a fine specimen of *A. laciniata* was exhibited in a competition for wild flowers gathered within a certain radius

of the city; and when thrown out was secured by Chas. Withers. He could not, however, ascertain its origin: whether it really came from our Channel shore or had been unlawfully imported.

### OBIONE *Gaertn.*

#### 803. *O. portulacoides* Moq. *Sea Purslane.*

Native; on the coast; very rare.

August to October.

**G.** Shirehampton; *Sweete, Fl.*; and, July, 1867; *Herb. St. Brody*. Avonmouth; sparingly on a mud-flat adjoining the railway station, 1879. It held on until 1896; *Herb. Roper*. Since then nothing has been heard of it in Gloucestershire; and the recent Dock extension makes it practically certain that the species is now lost to the county.

**S.** Clevedon; first observed there by Mr. S. T. Dunn in 1894. Mr. D. Fry searched for it in 1896, and found on the muddy shore of Salthouse Beach a very small patch, looking rather sick and apparently dying out. It has continued in that poor state through the intervening years and is still alive. In 1905 Mrs. Foord-Kelcey showed me bits from two spots at Clevedon; one on the beach and the other on the Walton Castle estate. On the sea coast, near the mouth of the Parret, Burnham and Steart; *J. C. Collins, MSS.* in *New B. G.* Near the mouth of the river Parret; *T. B. Flower*. These records remained many years unconfirmed, until 1906 in fact, when the Rev. E. S. Marshall, to whom we owe the much needed rediscovery of several rare species, showed me a strong patch of about two sq. yards on a mud-flat below Burnham, where he had first noticed it a week or so before.

### POLYGONACEÆ.

#### RUMEX *Linn.*

#### 804. *R. maritimus* L. *Golden Dock.*

Native; in marshes of the southern portion of our area; rare and local.

July and August.

**S.** On the beach at Portishead; *J. N. Duck*. "Said to have been found at Portishead by S. Rootsey;"—*Fl. Som.* Several plants in 1884 in a marsh on Tor Hill, east of Wells; and at Knowle Bridge, Wookey; *Miss Livett*. Wedmore, 1843; *Thwaites* in *Herb. Stephens*. Salt-marshes near Highbridge; *Sole, MS.* Mouth of the Parret and Steart; *J. C. Collins, MSS.* in *New B. G.* Plentiful on the peat moors after any fresh cutting of the turf.

#### 805. *R. limosus* Thuill. *R. palustris* Sm. *Yellow Marsh Dock.*

Native; in marshes to the southward, like the last; rare and local.

End of August and September.



**S.** Tickenham Moor; one large plant in each of two spots, several hundred yards apart, Oct. 1902; *C. Bucknall*. Berrow; on a roadside green a short distance inland, several of the plants unusually large, fully four feet high, 1906; *Rev. E. S. Marshall*. Aller Moor, near Mudgley. Burtle Moor, 1857; *Herb. Clark*. Shapwick and Ashcot Moors; springing up plentifully with the last species among the first plants that appear upon the peat when exposed by the turf-cutters.

This Dock and its near ally, *maritimus*, are quoted in *Topogr. Bot.* for vice-county 6, on the authority of different observers; one standing as "Clark sp.," and the other, "Collins MS." It looks as if neither botanist recognized them both. And, on the Somerset peat moors, where the two species grow intermingled, it is certainly far from easy to make out the distinctive characters of both at the same visit, chiefly because *palustris* flowers a month later than its fellow, and is not in good fruit until *maritimus* is withered and in bad order for comparison. Babington's *Manual* gives July and August as the time for the latter, and July to September for the former. In this district it has been found that *R. palustris* does not mature its fruit before September. At that period, although, as Dr. Boswell Syme remarks, the whorls of *palustris* are sometimes confluent as in the other, yet the greater size of its nuts and much shorter teeth on the enlarged sepals make distinction plain. But anyone visiting the moors in July or early August could scarcely come to a satisfactory conclusion on the presence or absence of the subject of this note, on account of its immaturity.—*Note by D. Fry and the author in Journ. Bot.* 1892, p. 13.

**VAR. confertus** *Schatz.*

With confluent, agglomerated whorls. One very large plant occurred as a casual on some waste ground at Ashton Gate, S., 1911.

**806. R. conglomeratus** *Murr.* *Sharp Dock.*

Native; on roadsides, ditchbanks and damp waste ground; common and generally distributed. July to September.

**807. R. sanguineus** *L.* *Bloody-veined Dock.*

Denizen; on waste ground and waysides; very rare. July and August.

**G.** Brandon Hill, 1828; *S. Rootsey*; and *T. B. Flower in litt.* In the shrubbery of the Memorial Church, Victoria Square, Clifton, for the past fifteen years; holding on stubbornly in spite of attempts to grub it out, and its never being permitted to flower. Bank of Avon under Durdham Down; *T. B. Flower*; now lost. Henbury; *Miss Powell in Swete, Fl.* Roadside at Hanham, 1884; *W. E. Green*. Frome Glen, 1875; *Rev. W. W. Spicer*. Has a place in the anonymous list of Bristol plants (*circa* 1830) already mentioned.

**S.** On the Leigh side of the Avon by Bristol; *Dyer in Bot. Guide* (1805). Bank of Avon under Leigh Woods; *Swete, Fl.* and in 1884; *Herb. Flower*. Not seen of late. Easton, near Wells; *Miss M. Mayow in Fl. Som.* In a wood at Kelston; *Fl. Bathon*. Villa Fields, Bath, 1894; *S. T. Dunn*. There is a leaf of "ye Bloody Dock" in W. Paine's *Hortus Siccus* (1730). See *R. pulcher*.

VAR. **R. viridis** Sibth. *Green-veined Dock.*

Native; in shaded hedges, open woodland and waste places; common.

July and August.

**G.** Clifton Zigzag; and elsewhere in shady places about St. Vincent's Rocks and the Downs. Cook's Folly Wood. Stoke Bishop. St. Philip's Marsh, on waste ground. Combe Down. Henbury. Glen Frome. Frenchay.

**S.** Frequent about Leigh Woods. Brislington. Whitechurch. Very common about Stockwood, Pensford, Stanton Drew and Chew Magna; *D. Fry*. Barrow Gurney. Portishead. Clevedon. Congresbury.

Many other stations could be given; the plant being well distributed. The above localities are among those nearest to the city.

**808. R. pulcher** L. *Fiddle Dock.*

Native; on roadsides and dry turfy places, often on high ground. Rather common, especially on limestone.

July and August.

**G.** Plentiful on turfy slopes opposite Sion Hill, Clifton; on the Zigzag and borders of paths about St. Vincent's Rocks. Bank of Avon and quarries under the Downs. "The second meadow between the Mall and Royal York Crescent, Clifton;" *Winch* in *New Bot. G.* (1835). On the Henleaze estate; *Miss Jacques*. Brandon Hill. Cotham. Church Lane, Henbury; *Herb. Powell*. Penpole Point. Kingsweston Down, 1910. Stapleton. Horfield. Abundant along the road skirting Frenchay Common on the west, 1910. Ivory Hill. Wyck Cliffs and Mangotsfield; *Swayne* in *Withering* (1796). Still in both those localities. Old Passage, Aust.

**S.** Abbotsleigh. Providence Place. Keynsham and Saltford; *D. Fry*. Portishead; and here and there along the ridge to Walton-in-Gordano and Clevedon, where it is frequent. By field-paths, Axbridge, 1911. Cheddar Gorge and village; known thereabout for nearly two centuries at least; see below. Bleadon, 1882; *Mrs. Lainson*. Purn Hill, above Bleadon, 1888. Worle Hill, 1888 and subsequently. Weston-super-Mare; *St. Brody*. In the old churchyard at Uphill; *G. S. Gibson*, 1843; *Phytol.* I., p. 757. Still there at the present time. Brean Down; *J. Poole* in *Fl. Som.* Plentiful on Brean Down, 1911. Between Lansdown and Langridge; *D. Fry*. Common on roadsides; *Fl. Bathon*. "This statement is misleading: it is not true now, even if it ever were."—*S. T. Dunn*.

The Bristol Museum possesses a "*Hortus Siccus* presented by your humble servant, Wm. Paine, Botanist. Collected from ye Rivers, Woods, Fields and Gardens of ye county of Somerset. Anno 1730." In it is a specimen of "Ye Fidle Dock, from St. Vincent's Rocks, Cheder Clieves etc."

In *Journ. Bot.* 1872, p. 174, Mr. Archer Briggs called attention to another of Paine's curious albums then in the possession of a Plymouth family, and "collected from the Sea, Rivers, Fields, Woods and Gardens of Most Parts of ye West of England, Anno Dom. 1732." The Editor of the *Journal* (1904, p. 299) mentions a third collection now in the Sloane Herbarium, entitled "Filax's and Fungus's Taken in ye West of England by Wm. Paine, Botanist,



1737-8." A fourth, of marine algae from Yarmouth and Lynn, is in the British Museum, S. Kensington; and from this it would appear that Paine's industry was not confined to the West country. It is evident that these collections were prepared by him for sale.

**809. *R. obtusifolius* L.** *Broad-leaved Dock.*

Native; by roadsides, and in fields and waste ground everywhere. Very common. July to September.

**810. *R. acutus* L.** *R. pratensis* M. & K. *Meadow Dock.*

Native; on roadsides and field borders. Rare, but very likely to be passed over. Said to be the hybrid *R. obtusifolius* X *crispus*. July to September.

**G.** Plentiful (1892-1900) by the roadside crossing the railway bridge below Sneyd Park; and also about the Black Rock Quarry. A few plants at Hanham, 1891. Oldbury Court Road, Fishponds, 1904. Roadside at Mangotsfield. Waste ground near Avonmouth Docks. Waste heap at Bitton Paper Mills, in plenty, 1908. On the Grange Farm, Northwoods; *Miss Roper*.

**S.** Failand; on rubble heaps by a lime-kiln. Brislington; in a lane south of Dr. Fox's Asylum. Bank of Avon opposite Hanham Mills; *C. Bucknall*. One plant at Keynsham, 1891. In a meadow by the Avon at Newton St. Loe, and under walls on the Manor Farm at Corston; *D. Fry*. The Corston specimens were nearer to *obtusifolius* than is usual with the hybrid; which, as a rule, favours the other parent. Congresbury, Shipham and Cranmore; *Rev. R. P. Murray*. Drove on the peat moors near Edington and Shapwick. "Abundant in moist places;" *Fl. Bathon*. But, says Baker, that was *conglomeratus*, which was not mentioned by Babington in his little work.

The fruit of *acutus*, when mature, becomes very distinct from that of *obtusifolius*: much more so than in the earlier stages. The nuts are larger and seem to be produced in plenty, as is stated in the *Manual*. But there are certainly more sterile perianths with the hybrid than in the case of *R. obtusifolius*.

**811. *R. crispus* L.** *Curled Dock.*

Native; by roadsides and in fields and waste ground. Very common.

June to August.

**VAR. *trigranulatus* Syme.**

**G.** Shingly beach by the Severn below New Passage, 1909 and 1911.

**S.** Portishead; on waste ground by the Dock, 1907-9: there looking very like an alien. Inner face of the coast sand-hills between Brean and Berrow, 1907. Pointed out to me by Mr. C. E. Salmon, who comments (*Journ. Bot.* 1908, p. 265):—"Although this variety is included in Hooker's *Student's Flora*, and the last edition of Babington's *Manual*, it is omitted from the ninth and tenth editions of the *London Catalogue*. It appears to be chiefly a coast form, and differs from ordinary *crispus* by habit, three large tubercles, and other points."

**812. *R. Hydrolapathum* Huds. *Great Water-Dock.***

Native; by ponds, riversides and rhines; locally common.

July to September.

**G.** Ditches near Shirehampton; Avonmouth; Lawrence Weston; and in Hallen Marsh. Compton Greenfield. Sparingly in Glen Frome below Stapleton, as noted by Swete; and higher up the river at Moorend. Splendid and abundant in Willsbridge Mill-pond near Bitton. Ponds and swamps in the bottom near Winterbourne Church. By the mill at Frampton Cotterell. In the Boyd stream near Doynton. Below Yate Rocks; *Miss Roper*. Between Alveston and Gaunt's Eartheott. The Leechpool. Charfield. Cromhall. Tortworth.

**S.** By the Avon in several spots near Keynsham, Saltford and Twerton. Nailsea and Tickenham Moors. Yatton. Clevedon; *D. Fry*. Abundant by ditches in the great alluvial tract between the Mendips and the Bristol Channel, as near Axbridge, Draycott, Wedmore, Brent Knoll and Burnham. Easton Moor; *Miss Mayow*. Plentiful on the peat moors. By the Cam Brook near Dunkerton. Canal between Camerton and Radford. Bathampton and Batheaston; *Fl. Bathon*. Mr. S. T. Dunn remarks in *Fl. Som.* that some plants growing with the type by the Avon above Bath have rather cordate leaves with raised petiole-edges.

**813. *R. Acetosa* L. *Common Sorrel.***

Native; in meadows and pastures; very common. May to July

**814. *R. Acetosella* L. *Sheep's Sorrel.***

Native; on dry hills, commons and barren pastures in many places about Bristol. Plentiful about St. Vincent's Rocks, Brandon Hill, Trooper's Hill, and many colliery spoil-banks. May to July

**POLYGONUM Linn.****815. *P. Bistorta* L. *Bistort. Snakeweed.***

Denizen or possibly native; in moist hedge-bottoms, meadows and shady places. Rather rare, but distributed thinly over a large portion of the district.

May and June.

**G.** Near Frenchay, 1881; *Oliver Giles*. By the river-side, Frenchay, 1908; *H. J. Wadlow*. The Downs, Wickwar; *Mrs. Woodford*. Dursley; *Miss Gingell*. Whitewell Bottom, east of Hillsley. Damery, near Stone, 1911.

**S.** Brislington; *H. O. Stephens* in *Swete, Fl.* Whitechurch; *Herb. Stephens*. Hedgebank in a lane leading from Abbotsleigh to Failand; established many years. A large patch in a meadow on Failand Farm, 1885. Leigh's Wood, Failand; *D. Williams*. Near Dundry; *Thwaites* in *Swete, Fl.* Dundry, 1880; *Oliver Giles*. Bank of stream on Freeman's Farm, Barrow Gurney. Meadow at Norton Hautville, 1902; *F. Samson*. Lane behind Chew Magna Church, 1903; *Miss Roper*. Hedgebank on the roadside, Publow. By a path in



Lord's Wood, Houndstreet, 1895. Between Clutton and Hallatrow, abundant; *C. Bucknall* and *L. W. Rogers*. At the Butcombe end of the Yeo Reservoir, 1910; *D. Carr*. Compton Martin Wood, 1911; *Miss Roper*. Hill pasture near Chewton Mendip. Douling Bottom; *W. Barnes*. Ham Wood, Croscombe; now destroyed by quarrying; *Miss Livett*. Meadow near Mells; *G. Horner* in *Fl. Som.* St. Catherine's Valley, Bath; *Herb. Flower*. Near St. Catherine's, in great luxuriance, June, 1853; *L. Blomefield*. Messrs. Inman and Broome searched for this later, but could not find it. Lane between Larkhall and Woolley; *T. F. Inman* in *Fl. Som.*

**816. *P. amphibium* L.** *Amphibious Bistort.*

Native; in or on the brink of pools, rhines and sluggish streams. Common July to September.

**G.** Ditches near Shirehampton, Avonmouth, Lawrence Weston and Hallen. Baptist Mills; *Swete, Fl.*; and is still at the Boiling Well. In the Frome here and there above Eastville. Shallows of the Avon at Conham and elsewhere. Ditches between Alveston and Itchington. On the Stoke and Bradley Brooks, west of Winterbourne. Mill-stream, Frampton Cotterell. Rockhampton; *Miss Roper*.

**S.** Marsh near Ham Green. Ditches near Portbury Church. Rhines and ditches of the Moors throughout the lowlands from Tickenham, Nailsea and Yatton to Clevedon, Puxton and Weston-super-Mare. Similarly in the Cheddar Valley, and from Brent Knoll to Berrow and Burnham. Peat moors. In many parts of the river and canal; *Fl. Bathon*.

This plant sometimes leaves the water and spreads, by rooting, on to comparatively dry ground. Then it puts on a distinct appearance and is often in a flowerless condition (*var. terrestre* Koch).

It may be thought that *P. amphibium* is really too frequent in watery places to justify detailed lists of localities.

**817. *P. lapathifolium* L.** *Glandular Persicaria.*

Native; in damp waste ground and on manure heaps; common.

July to October.

**818. *P. maculatum*** *Trimen & Dyer.*

Native; in the same situations as the last, of which some botanists consider it to be a variety. Rather rare?

July to September.

**S.** Cheddar; *J. G. Baker* in *Fl. Som.* Marsh among the sand-hills near Burnham. Wells! *Miss Livett*. Frequent on the peat moors.

**819. *P. Persicaria* L.** *Common Persicaria.*

Native; on cultivated and waste ground, ditch banks and other damp places; very common.

July to October

*var. biforme* *Wahl.* = *elatum* *Gr. et Godr.*

**S.** On the peat moor between Shapwick and Ashcot Stations; *E. F. Linton* in *Fl. Som.*

**820. *P. mite* Schrank.** *Lax-flowered Persicaria.*

Native; in wet peaty places; very rare.

July to October.

**S.** Bank of the Chew at Compton Dando, 1895. Catcott Burtle; on the moor in some quantity, 1882; *Fl. Som.* Peat moor near Catcott Drove, 1896!

**821. *P. Hydropiper* L.** *Water Pepper.*

Native; in watery places; very common. Hedge-bottoms by roadsides in the lowlands and the shallow drains of wet meadows are usually fringed with this species in the autumn.

August to October.

**822. *P. minus* Huds.** *Small Persicaria.*

Native; in bare spots on black peat, and boggy pits which are sometimes flooded; very rare.

August to October.

**G.** Yate Common; in two wet, boggy hollows; plentiful in one and sparingly in another! Discovered by C. Bucknall in Sept. 1909.

**S.** Burtle Moor, abundantly; *Sole, MS.* 1782. Turf moor, 1859; *Herb. Clark.* Not seen, it is believed, by any other botanist until a few fine plants were met with by the author on the peat between Catcott and Shapwick Drovers in 1895.

**823. *P. aviculare* L.** *Common Knot-grass.*

Native; on cultivated and waste ground, roadsides and field-corners; abundant and universally distributed.

June to October.

Growing in all sorts of soils and situations, wet or dry, this is naturally a variable aggregate of multitudinous forms. Dr. Boswell Syme, in *Engl. Bot.* describes six of these in detail; the *Lond. Cat.* gives the names of seven; while nine are enumerated in Druce's list, and it is said that even that number by no means represents the series of variations. Reports of the Exchange Clubs show how difficult it sometimes is to fit varietal names to our plants. Gatherings submitted to three or four good botanists have received as many differing determinations. The *VAR. arenastrum* Boreau is the only one it seems advisable to mention here. The Rev. E. S. Marshall, Dr. Moss and Mr. Druce all agree with me that it grows along sea-banks of the Brue between Burnham and Highbridge. Abundant there.

**824. *P. Raii* Bab.** *P. Roberti* Loisel. *Ray's Knot-grass.*

Native; on sea sands; very rare.

August and September.

**G.** Shore, New Passage, July, 1865; *Herb. St. Brody.* The sheet has two stems, without root, gathered by himself. It is very unlikely that the plant will again be met with in the county.

**S.** Burnham; in hollows amid the sand-hills, in small quantity, 1906! *Rev. E. S. Marshall.* There were about a dozen plants in 1907. Between Berrow Church and Burnham Church, on the very front of the Dunes; rare, but very fine: also near the little lighthouse, Burnham; *Dr. C. E. Moss.*



These localities are not the same as Mr. Marshall's. The last-named botanist finds more of the plant on the coast south of the river Parret.

**825. *P. maritimum* L.** *Sea Knot-grass.*

Native; on sea sands; exceedingly rare.

August and September.

**S.** Shore between Brean and Burnham, one plant, 1882! *H. S. Thompson*. The specimen is now in the National Herbarium, Kew. It will be noticed that Mr. Thompson has the singular, but most useful, faculty of detecting small quantities of the rarest plants. *P. maritimum* was stated by Dr. St. Brody to occur, rarely, on the beach at Weston-super-Mare; but of this there has been no confirmation.

**826. *P. Convolvulus* L.** *Black Bindweed. Climbing Buck-wheat.*

Native; in cultivated and waste ground; very common. July to October.

**VAR. *subalatum* v. Hall. = *pseudo-dumetorum* Watson.**

With the perianth segments winged. This variety may be mistaken for the next species if the ripe fruit be not examined. It seems to be frequent in hedges and thickets.

*P. Convolvulus* is an abundant and troublesome weed among crops and in gardens: most difficult to get rid of when once established. Every scrap of the thread-like creeping rhizome will produce a new plant speedily. This, with the Field Convolvulus and one or two other twining and trailing species equally obnoxious to cultivators, is called "Lily" in Hants and Sussex, where I have seldom heard the name mentioned by gardeners without a term of execration as a prefix.

**827. *P. dumetorum* L.** *Copse Buck-wheat. Climbing Snakeweed.*

Native; in thickets; extremely rare.

July to September.

**S.** "On the bushy sides of a hollow through which the Western Railroad passes, about one mile from Keynsham towards Bristol, and near a bend in the river, Sept. 1836;" *C. C. Babington*.

This is one of the scarcer British species, with headquarters in the southern counties. It is said to be uncertain in its appearances and sometimes to desert a known locality for a considerable time, seldom occurring in the same place two years following. For this reason, I suppose, neither Mr. D. Fry nor I have been able to find the plant in Babington's habitat; although I understand that other botanists have been more fortunate. Mr. Flower told me it was first found near Keynsham by Mr. David Don. I have one of Babington's specimens gathered at the date given above.

[***Fagopyrum sagittatum* Gilib.** *F. esculentum* Moench. *Buck-wheat.*

Alien; frequently met with as an outcast on waste ground and rubbish heaps. Sown as food for game.]

**[ELÆAGNACEÆ.]**

***Hippophaë Rhamnoides* L.** *Sea Buckthorn.*

Alien. About enclosures on the Burnham sand-hills, introduced about 1890, and thriving in quantity of late. A strong thorny shrub, with narrow silvery leaves and orange-yellow fruit, that does well in exposed positions by the sea. Native in Britain only on the East and South-east coasts.]

## THYMELACEÆ.

DAPHNE *Linn.*828. *D. Mezereum* L. *Mezereon.*

Native, at least in one locality; in thickets on limestone hills. Very rare, or possibly now extinct. February and March.

**S.** Compton Martin Wood; *Rutter's Hist.* (1829). Huntrix [spelt Hunterwick in *Fl. Som.*] Wood, near Cold Ashton, 1849; and Woods, Churchill Batch, 1884; *Herb. Flower.* One plant in a hedgerow between Stanton Drew and Knowle Hill, 1887; *D. Fry.* In a thicket on Cadbury Camp, 1900; *Mrs. Gregory.* Hedgebank near Wells, now destroyed; *Miss Livett.* By the Juniper on Bathford Hill; *Dr. Harper.* Brass Knocker Wood; *Davis* in *Fl. Bathon.* Woods at Claverton; *Jelly* in *Fl. Bathon. Suppl.*

Some of our most beautiful native plants have suffered nearly to extinction from being transplanted from their native haunts into gardens. This is one of them. I have seen it only on Churchill Batch, where in February, 1883, about a dozen specimens grew scattered over a considerable space of steep, stony hillside covered with dwarf coppice. Nearly all of these were below the road, towards the bottom of the slope; but one or two were found also high up on the hill near the old coach road. In this situation the shrub had unquestionably the look of a genuine native, notwithstanding that some botanists have not allowed *Mezereon* to be indigenous in England. It has been supposed to originate in woods from seeds of the garden shrub dropped by birds; and in some instances that is likely enough to have happened. But at Churchill Batch the *Mezereon* bushes seen in cottage gardens at the bottom of the valley under Dolebury had been transplanted from the hill side; for I found on making inquiry of the cottagers that they had none before their boys dug some up and brought them from the wood. Two years later, as the result of a long search, I could find but one small plant. I learnt from Mr. Knight of "Wintrath," who has lived a long while at Sidecot and, of course, knows the Mendips intimately, that he had seen *Mezereon* in the "Daffodil Valley" below Shipham, as well as on Churchill Batch, many years ago; but he feared the whole had been exterminated. In 1906 the plant remained only as a tradition. It was gone, even from the Dolebury gardens, where it had all died out. Although some children said it still survived on the upper part of the Batch, neither Miss Livett nor I could find any; and we searched twice.

In Mr. Flower's garden at Beaufort West there used to be several fine bushes which had been brought in from one or other of the above localities. They aroused a suspicion that the owner may have taken rather more than his share!

829. *D. Laureola* L. *Spurge Laurel.*

Native; in woods and occasionally in hedges, on limestone and oolite. Rather common. February and March.



**G.** Cook's Folly Wood; rather plentiful in 1906. Stoke Bishop Wood; *J. Foster* in *Swete, Fl.* Still there at the Sea Mills end, 1907. Combe Glen, Westbury; *Swete, Fl.* Many bushes in a wood above the Trym under Combe Down. Henbury; *Herb. Powell.* Copse, Kingsweston; *H. O. Stephens.* Blaize Castle Woods, abundant. Quarry, Lawrence Weston. In the Frome valley near Frenchay; *H. J. Wadlow.* Wood at Coalpit Heath; *Miss Roper.* Old Down, above Tockington. Wood above the river near Iron Acton. Almondsbury. One bush on Tytherington Hill, 1910. Frequent in woods about Wotton-under-Edge. Stinchcombe Hill. Alderley. Dursley.

**S.** Leigh Woods; a few plants in a small space overlooking the Avon. I counted twenty in 1886; probably there are fewer now. Recorded thence by *Swete.* Between Pill and Ham Green. Upper Failand, on the southern side. Plentiful in the Rectory Woods, Wraxall; and a few bushes on the West Hill. Scattered abundantly in Limeridge Wood above Tickenham! *D. Fry.* Hedges between Keynsham and Compton Dando. Plentiful in a fir wood at Chewton Keynsham, and in woods nearer Kelston. Wood on the Wells Road above Publow. In two places between Stanton Drew and Stowey; and in several between the former place and Bishop Sutton. Hedges and woodland near Litton, Hinton Blewett and the Harptrees. Some large bushes on Cleeve Toot, 1886 and 1902. Throughout the whole range of woods from Goblin Combe and Cleeve to Rhodyate Hill, King's Wood, and Col. Long's Woods near Congresbury. Abundant in Cheddar Wood, 1886 and 1904. Rodney Stoke Wood; *Rev. E. S. Marshall.* Sparingly in the Daffodil Valley below Shipham. Unknown on the higher ground of Mendip. Croscombe; *Fl. Som.* One old bush on the low cliff at St. Thomas' Head near Woodspring Priory; seen at various dates from 1880 to 1907. Worlebury Wood; Weston-super-Mare. Hutton Woods. Thickets at the southern base of Uphill, 1898. Brent Knoll; *D. Fry.* Milton Hill, Pen Knowle, and Wookey, near Wells; *Miss Livett.* Under Lansdown; *D. Fry.* Frequent in the woods; *Fl. Bathon.*

## SANTALACEÆ.

### THESIUM *Linn.*

**830. T. humifusum** *DC.* *T. linophyllum* *Sm.* *Bastard Toadflax.*

Native; on oolite; extremely rare.

June to August.

**S.** Claverton Down; *Jno. Kitley* and *T. B. Flower* in *Fl. Bathon. Suppl.* Hampton Down, Bath; *A. E. Burr.* Mr. Burr sent me specimens in 1886 and 1888. In 1890 Mr. D. Fry wrote: "The *Thesium* occurs abundantly over a limited space of ground on the edge of Hampton Down."

The plant is parasitic on the roots of upland pascual species belonging to several natural orders.

## EUPHORBIACEÆ.

BUXUS *Linn.*831. *B. sempervirens* L. *Box.*

Native; in the Cotswolds on the eastern border of the district; very local.  
April to June.

**G.** Abundant in woods at "The Warren," between Wotton-under-Edge and Alderley. Known there to Sir J.D. Hooker, and stated in the *Student's Flora* to be certainly indigenous. In September, 1900, when Mr. Bucknall and I had an opportunity of examining the locality, we found the shrub flourishing luxuriantly with an abundance of seedlings throughout the covers and enclosed hill-sides for a considerable distance. But, as Mr. Bucknall has remarked (*Journ. Bot.* 1901, p. 29), there seemed no definite indication, beyond its profusion, that the Box was really native at the spot. Continuing our walk in a north-easterly direction from Alderley towards the hamlet and church of Boxwell, beyond the limit of this district, we came to another large wood, consisting entirely of Box, occupying a similar position on the Boxwell Court estate to that at "The Warren," and extending half a mile or more along the steep side of the valley. It was found afterwards that this is marked on old maps as "The Box Wood." Historical references to the locality, presently quoted, leave no doubt that Box is indigenous in the valley; and there can be no reason why it should not also be a native of the woods nearer Wotton. Sir Joseph Hooker told Mr. Bucknall that he felt no doubt on the matter, and added that Bentham, whose knowledge of the conditions under which British plants are found on the Continent was profound, regarded the plant as truly wild in this country.

First record: 1695, by Ray in *Camden's Britannia*, ed. ii, p. 291. "*Buxus arborescens* Park. *The Box-tree*. At Boxwell in Coteswold, as I find in some notes communicated to me by my honoured friend Mr. John Aubrey."

In the *Synopsis* (1696) Ray wrote: "At Boxwel in Coteswold in Gloucestershire, . . . there are Woods of them; *Mr. Aubrey's Notes*."

"Boxwell, anciently Boxewelle.—The name is derived from a box-wood, of about sixteen acres within a warren of 40 acres, from which rises a plentiful spring. This is the most considerable wood of the kind in England, excepting Box Hill in Surrey, and from the name which has now been on record for more than seven centuries, it must have been of long standing."—*History of the County of Gloucester*, by the Rev. Thomas Rudge, published at Gloucester in the year 1803.

Many fine Box bushes, apparently wild but which have been planted as cover for game, are to be seen about Cleeve Toot, Goblin Combe and other like woodlands, mingled with indigenous shrubs. Some much older trees stand in a field facing Siston Court, with a fine example of the rare *B. balearica* and a splendid Plane-tree.



## EUPHORBIA Linn.

[**E. Peplis** L. *Purple Spurge.*

**S.** Sandy coast from Burnham to Brean; *J. C. Collins, MSS.* in *New Bot. G. Suppl.* (1837); also, for the county of Somerset, "*Gapper cat.*" These old and indefinite records were accepted by Watson as sufficient authority for crediting the plant to vice-co. 6 in *Topogr. Bot.* I do not know that they have ever been confirmed, or that a Somerset specimen exists.]

832. **E. Helioscopia** L. *Sun Spurge.*

Colonist. A common weed in cornfields and neglected arable land of any kind. July to September.

833. **E. platyphyllos** L. *Broad-leaved Warted Spurge.*

Colonist; in cornfields; rare and local. July to September.

**G.** Beanfield between Horfield and Filton, 1849; and cornfields, Charlton, 1850 and 1851; *J. H. Cundall.* Cornfield on the Horfield side of Filton Meads, in plenty from 1879 to 1884 or thereabout. Since that time the field has ceased to be arable. But the plant still occurs rarely amongst crops by the field-path leading to Bentry and Charlton; localities closely corresponding with those of Mr. Cundall. Fields near Westbury-on-Trym, 1849; *Herb. Cundall.* Cornfield between Alveston and Frampton Cotterell, 1838; *G. W. Sandys* in *Herb. Brist. Mus.* Marshfield; *Fl. Bathon.*

**S.** Knowle; *Swete, Fl.* Brent Knoll; in cornfields with *Linaria spuria*, etc. 1888: seems to show a marked preference for the Lias; *D. Fry.* Plentiful by a roadside near Locking, 1881; *Rev. R. P. Murray.* Edington; *J. Poole, MSS.* in *New Bot. G. Suppl.* (1837). Still there; *Fl. Som.* (1896). Easton; *Miss M. Mayow.* Cornfields at Monekton Farleigh, 1850; and Charcombe, Bath, 1869; *Herb. Flower.* South Stoke, and elsewhere near Bath; *Rev. L. Blomefield.* Frequent near Frome; *Dr. H. F. Parsons.*

This must have been more plentiful in the district when more land was under corn.

First record, and for Britain:—"Tithymalus platyphyllos Fuchsii, J. B. . . . Nos in Comitatu Somersetensi non longe ab oppido Kinesham copiosum invenimus."—*Ray Cat.* p. 299, (1670).

[**E. stricta** L. *Alien.* Casual near Twerton, S., 1902! *Miss Martin.* The localities given in *Fl. Bathon.* most probably yielded other species: "misnomers, perhaps through confusion with *E. stricta* of Smith, which was a small state of *platyphylla*." *H. C. Watson* in *Topogr. Bot.* The true plant is practically confined to woodland of the Wye valley; and, once seen, is not likely to be confused with anything else.]

834. **E. pilosa** L. *Downy Spurge.*

Native, probably; having been known in its present stations near Bath for considerably more than three hundred years. May and June.

**S.** "*E. epithymoides.* In plenty in a lane leading from below Prior Park Lodge to Combe Down, and also in a wood to the east of the Monument at Prior Park, as it seems to me, truly wild." *C. C. Babington* in *Fl. Bathon.* In May, 1884, the late Mr. T. F. Inman conducted me to the wood, and we found the spurge scattered sparingly over a space of about two acres in rather thick coppice, with plenty of *E. amygdaloides*. A number of plants were also seen

under a hedge at some distance (nearer Claverton), perhaps a quarter of a mile from the wood. We were told that its growth is greatly influenced by the state of the underwood, which is cut in the customary way at intervals. Soon after the wood has been cleared the plant appears in great plenty; and then annually diminishes in quantity as the brushwood regains its stature, until in some seasons little or none is to be found. At the date mentioned, and for long afterwards, the wood was unenclosed, at least on the south side, and the adjoining land being ploughed the wood-border remained light and open. On my successive visits, every few years, I always found the plant growing chiefly along the sunny edge. Latterly there has been a change of ownership. A barbed wire fence now surrounds the place, harbouring and protecting a mass of nettles and tall herbage that seems to have choked the spurge. At the end of June, 1909, no sign was visible of its having flowered that season. Still, as it has survived the trials and changes of three centuries it may not easily be stifled out of existence.

My late friend, Mr. A. E. Burr, told me that *E. pilosa* grew under similar conditions upon private property near Prior Park Lane, a mile or more from Collett's Wood; but of this I know nothing personally.

When cultivated, this plant proves rather tender and does not last many years. I have seen it die out in four gardens.

Earliest records. *E. pilosa* is probably the plant referred to by Lobelius as found by him: "In sylva D. Joannis Coltes prope Bathoniam."—*Lob. Obs.* p. 194 (1576).

"*Esula major Germanica Ad. Lob. Ger. Quacksalver's Turbith.* By a woodside, some mile south of Bathe."—*Johnson, Merc. Bot.* p. 34 (1634).

The Cornhill Magazine for June, 1881, contains in a dozen pages *The Romance of a Wayside Weed* by Mr. Grant Allen. In this article we have an instructive and interesting speculation on the conditions that have governed the survival in this country of *Euphorbia pilosa* and some other rare and isolated species, which are at present more widely distributed upon the European continent than they are in Britain; and on the origin of the British flora in general.

### 835. *E. amygdaloides* L. *Wood Spurge.*

Native; in woods, hedges and bushy places. A beautiful species, conspicuous in woodland scenery after trees have been felled or when coppice has been recently cut. Well distributed throughout the district.

April and May.

#### [*E. Cyparissias* L.]

Alien or Denizen. Very rare. Occurs plentifully a short distance outside our eastern border in a Cotswold combe or valley, a wild, unfrequented spot where the plant is considered to be native, and indeed could hardly have been introduced. See *Journ. Bot.* 1908, p. 358. We have no natural locality nearer home; the few instances in which this *Euphorbia* has been noticed being those of garden escapes. It is well established on a roadside wall at Stapleton, G., below some nursery ground; and was reported by Mr. T. B. Flower from Saltford, years ago, but is no longer there.]

### 836. *E. Paralias* L. *Sea Spurge.*

Native; on the sandy shore of the Bristol Channel; local. July to September.



**S.** Abundant among the sand-hills from Burnham to Brean. Now scarce at Weston-super-Mare, and apparently absent higher up the Channel.

I have not met with a record for this Spurge in Gloucestershire.

**837. E. Peplus L.** *Petty Spurge.*

Native; in gardens and cultivated fields; a very common weed.

May to November.

**838. E. exigua L.** *Dwarf Spurge.*

Native or Colonist. In the same situations as the last species, and almost as common.

May to November.

**839. E. Lathyris L.** *Caper Spurge.*

Native, probably, near Bath; casual elsewhere; rare. In most instances it has been introduced from cultivation, as when let alone in a suitable spot it holds the ground persistently. It seems to be a favourite in old-fashioned gardens.

June and July.

**G.** Wyck Cliffs, 1828; *S. Rootsey.*

**S.** Steep Holm, July 3, 1773; *Banks and Lightfoot.* This is the first British record for the species. See *Journ. Bot.* 1905, p. 300. The specimen is in the British Museum Herbarium, with the following note in Banks' hand:—"I found this one plant among the *Ligustrum* on the south side of the island, but being hurried by the tide had not time to search for more." There is a specimen in Herb. Clark (1842), also from Steep Holm. "I have myself seen the Caper Spurge, perfectly naturalized if not indigenous, on that curious rocky islet, the Steep Holmes in the Severn."—*Dr. W. A. Bromfield in Phytol.* III, p. 822, (1850). Mr. Flower recorded it from the island in 1887, and I am informed by Dr. Gough that the plant was still there in 1910. Garden weed at Long Ashton, 1882; *T. F. Perkins.* Clevedon; *D. Fry* and *W. E. Green.* On the Court Hill, Clevedon; *Mrs. Lainson.* Weed about a farmstead at Portbury. Berrow, 1883. Roadside between Croscombe and Dinder, 1905; *W. Barnes.* Railway bank, Wells, 1887; *Miss Livett.* In fields and gardens at Bath and Claverton; *Fl. Bathon.* Garden weed at Bath, 1894; *S. T. Dunn.* Apparently indigenous in Warleigh Wood; *Fl. Bathon. Suppl.* "In Warleigh Home Wood, abundant in 1887 and of very large growth, some of the plants being three to four feet high. We were told by Mr. Skrine's keeper, who showed us the plant, that nine or ten years ago it had almost disappeared from the wood; but on the thinning out of the trees it came up again abundantly, and has been plentiful ever since."—*D. Fry.* "Probably native near Bath."—*Syme's Engl. Bot.*

**MERCURIALIS Linn.**

**840. M. perennis L.** *Perennial Dog's Mercury.*

Native; in woods and on hedgebanks, etc. Very common and abundant throughout the district.

March to May

A monoicous specimen was noticed by Miss M. Young among some plants gathered near Eastville, Bristol.

S. Rootsey, in *Trans. Med.-Bot. Soc. of London*, p. 198 (1834), gives "Bristol Weed" as a local plant-name for *M. perennis*.

**841. *M. annua* L.** *Annual Mercury. French Mercury.*

Colonist; in gardens and cultivated fields, and on rubbish heaps; locally common. August to November.

**G.** Very abundant about Bristol in potato plots, allotments, and wherever the land is left uncleaned until the Autumn. "A noxious weed at Bristol"—*W. A. Bromfield* in *New Bot. G. Suppl.* (1837). Westbury-on-Trym. Avonmouth. Hallen. Patchway. Almondsbury. Hanham. Moorend. Warmley. Horfield. Yate. Charfield. Cromhall. Wotton-under-Edge.

**S.** Knowle. Brislington. Whitechurch. Chew Magna. Long Ashton. Wraxall. Tickenham. Portishead. Clevedon. Fields near Weston-super-Mare, not common; *St. Brody* (1856). Very plentiful there now, and for many years past. Bleadon. Banwell. Churchill. Berrow. Highbridge. A common weed about Bath, and difficult to get rid of; *Jenyns*. Too common; *Fl. Bathon*.

**VAR. *ambigua* L.**

With the type, but rather rare. It is the narrow-leaved female plant with male flowers intermixed, *i.e.*, monoicous. The seeds, too, are ovoid rather than globular.

**G.** Crew's Hole; *Herb. Stephens*. Hanham.

**S.** On the embankment of a new road at Ashton Gate, 1906. Frequent at Whitechurch, Brislington and Saltford, 1890, etc.; *D. Fry*. Plentiful at Axbridge, 1905; *W. F. Miller*. Weston-super-Mare! *Mrs. Gregory*. Twerton-on-Avon! *Miss Martin*. Rather common about Bath; *A. E. Burr*.

*M. annua* was once a much rarer plant in this country than at present, and there is evidence to show that it was originally imported from the Continent as a garden production. It seems to have spread from our southern and eastern coasts, where no doubt it first became established, and to have advanced irregularly. In contrast with its position here as a troublesome weed, local botanists have described it recently as very rare in S. Devon and E. Cornwall; extinct in Herefordshire; absent from N. Berks; the merest accident in Oxfordshire; and practically unknown in West Yorks. Farther north the plant is stamped as a casual introduction.

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## CERATOPHYLLACEÆ.

## CERATOPHYLLUM Linn.

842. *C. demersum* L. *Common Hornwort.*

Native; in ditches and ponds; locally common. July to September.

**S.** In the Avon near Saltford. Abundant in rhines and ditches near Portbury, Nailsea, Yatton, Clevedon, Kingston Seymour and Weston-super-Mare. Brent Marsh and Mark; *H. S. Thompson*. The peat moors. Plentiful in the canal near Bath; *Fl. Bathon*.

843. *C. submersum* L.

Native; in still waters; apparently rare, but its distribution is imperfectly known. July to September.

**G.** Pond near Charfield, 1883; *W. B. Waterfall*.

**S.** Woodspring, Sept. 1850; *Hort* in *Herb. Boswell*. Ditch at Lympsham, 1881; *Fl. Som.* Abundant in a roadside ditch between Worle Station and the village, a good deal of it fruiting! Sept. 1907; *Rev. E. S. Marshall*. It is interesting to note that the plant was observed in Mr. Marshall's locality nearly two hundred years earlier. We learn from Mr. Druce's account (*Dill. Herb.* pp. xlvii, 52), that Dillenius, in 1726, noticed "*Hydroceratophyllum folio lævi, octo cornibus armato, fructu lævi*, in ditches near Worle and Congresbury; and on the moor near Glastonbury." Dillenius made the first British records for the species.

The Hornworts seldom produce fruit, and in its absence the plants cannot be separated with any certainty. Mr. Arthur Bennett states (*Rep. Bot. Exch. Club*, 1895, p. 496), that "unless the fruit be ripe it is utterly impossible to name the forms, as the change from young to ripe fruit is accompanied by corresponding changes in the spines, etc." Some of the localities assigned to *C. demersum*, where no fruit was found, may therefore belong here.

## CALLITRICHACEÆ.

## CALLITRICHE Linn.

844. *C. palustris* L. *C. vernalis* Kuetz. *C. verna* L. *Water Starwort.*

Native; in ponds and streams; distribution unknown. I give simply two localities which have been certified. May to September.

**G.** Pond by Alveston Old Church! *Miss Roper*.

**S.** Cheddar mill-pond; *Fl. Som.* fide *A. Bennett*.

The genus has been so much split that it is hard to say now if there be anything left of the old Linnean aggregate to represent the restricted modern

*C. palustris*. The records for *verna* in *Swete*; *Fl. Bathon.*; etc., cannot safely be assigned to this. Mr. Murray wrote to me that he had never seen *C. verna*, and almost doubted the existence of such a plant apart from the other segregates. In his *Fl. Som.* he admits the species only on the authority of other botanists. Mr. Druce has nothing to match it in Berkshire. Dorset is in the same predicament; and the authors of *Fl. Heref.* state that no *Callitriche* answering to the description of *C. verna* as limited by modern authors has been detected in that county. The characters to be relied on are the small, bluntly keeled fruit, and short, erect, deciduous style. This plant should be carefully looked for, and indeed there is plenty of room for further investigation amongst the group as a whole.

**845. *C. obtusangula* Le Gall.**

Native; in similar situations to the last; but more common or better known.

May to September.

**G.** Specimens from the Combe valley. Westbury on Trym, coll. "Carpenter," are in the Edinburgh Herbarium. "Bristol," *Nyman, Consp. Fl. Eur.* p. 250. This is quoted by inadvertence in the *Flora of Somerset*, but doubtless refers to the Gloucestershire locality. See *Journ. Bot.* xiii, p. 110. Ditch between Shirehampton and Avonmouth. Lawrence Weston. Pond in field opposite Siston Court; *C. Bucknall*.

**S.** Ditches between Portbury and Portishead. Kenn Moor. In ditches near Uphill and below Brean Down; *E. S. Marshall*. Rhines by Highbridge; *W. B. Waterfall*. Ditches near Berrow and Catcott Burtle; *Fl. Som.* Pool among the sand-hills near Berrow Church, 1889. Plentiful in the disused canal at Paulton, 1895; and at Midford, 1901.

**846. *C. stagnalis* Scop. including var. *platycarpa* Kuetz. Large-fruited Water Starwort. Mud Starwort.**

Native; in ditches and shallow water; often on the muddy margin. Common and generally distributed.

May to September.

The variety *platycarpa* has the lobes of the fruit more nearly parallel. In this country it appears to be more frequent than *stagnalis*. Indeed Syme, in *Engl. Bot.*, says the form with divaricately lobed fruit had not been met with by him. The leaves vary in size and shape according to the amount of water in which the plant may be growing; but are typically obovate. The large fruits with persistent styles and bracts are characteristic.

**847. *C. intermedia* Hoffm. *C. hamulata* Kuetz.**

Native; in ditches and ponds, frequent.

May to September.

**G.** Ditch between Shirehampton and Avonmouth. Hallen. Frampton Cotterell. Coalpit Heath. Sheperdine. Buckover. Charfield. Tortworth; *W. B. Waterfall*. Pool on Goosegreen Farm, N. of Yate.

**S.** Marsh under the hills between Tickenham and Wraxall; *C. Bucknall*. Rhine in the Walton valley near Clevedon. In the Cheddar Water; *J. G.*



*Baker.* Lowland ditches below Cheddar, Axbridge and Draycott. Near Bleadon, and in a pool north of Berrow; *E. S. Marshall.* Old coal canal near Midford, 1901. Near Bath; *W. M. Rogers* in *Fl. Som.*

VAR. *pedunculata* DC.

**G.** Ponds on Yate Common and Yate Lower Common, 1910! *C. Bucknall.*

Botanical writers vary in their estimate of this variety. While the later French authors make it a distinct species, the Germans (*Koch*, ed. iii) ignore it altogether. The fact that long-stalked fruits and sessile ones are to be found on the same stem may well account for these differences of opinion. The Yate plant grows in fairly deep water, but in the Midlands I understand it is often found on mud.

## URTICACEÆ.

### PARIETARIA Linn.

**848. *P. ramiflora* Moench. *P. diffusa* Koch. Wall Pellitory.**

Native; on old damp walls, farm-buildings, and the rubble masonry of roadside banks; more rarely upon rock. Common in many situations.

June to September.

**G.** On rock by the Avon bank; *Miss Roper.* Stoke Bishop. Kingsweston. Westbury. Henbury. Brentry. Stoke Gifford. Hambrook. Stapleton. Hanham. Siston.

**S.** Abbotsleigh. Bedminster. Long Ashton. Failand. Brislington. Keynsham. Pensford. Chew Magna. Portishead. Abundant about Clevedon, Cheddar, Wells and the villages along the south-eastern border of the district. Common about Bath.

VAR. *fallax* Gren. et Godr.

**S.** Cornfield, Bath, Aug. 1859 (as *erecta*); *Herb. Flower.*

Many other stations might be added for Pellitory of the Wall. It is almost too common and widely distributed to need any mention of localities.

### URTICA Linn.

[**U. pilulifera** L. *Roman Nettle.*

Alien; of casual occurrence. Very rare. It has never appeared under conditions that would mark it as a Bristol plant; nor has it continued at either of the localities quoted. No specimen has been produced in my time.

**G.** Under walls at Winterbourne, 1855; *Stephens Cat.* Reported to have grown against an old wall near the town of Wotton-under-Edge, but to have been extirpated long since.

**S.** Formerly on waste ground at Kewstoke; *Dr. St. Brody.*]

**849. U. urens L.** *Small Nettle.*

Native or Colonist; on old mixens and waste ground by roadsides, and in cultivations near villages. Not very common: far less so than the following, and more confined to the vicinity of habitations. June to October.

**G.** Occasionally as a casual on rubbish heaps at Clifton; and on refuse in St. Philip's Marsh, Bristol. Shirehampton. Kingsweston Down, at a spot where the turf had been removed and other soil substituted; *J. H. Priestley*. Ashley Hill. Stapleton. Hanham; *Herb. Jenyns*. Fishponds. Downend. Almondsbury. Wyck. Chipping Sodbury. Codrington.

**S.** Bishport; *Swete, Fl.* Bedminster. Whitechurch. Stanton Drew. Nailsea. Yatton. Wrington. Very plentiful on a large piece of neglected arable land between Walton and Weston-in-Gordano, 1909. Kewstoke; *Miss Roper*. Abundant and permanent about Burnham and Berrow, growing here and there along the coast-road nearly all the way to Brean Down. Easton near Wells; *Miss M. Mayow*. Wells; *Miss Livett*. "Common about Bath;" *Fl. Bathon*. But this seems to have been a mistake, for the Rev. L. Jenyns stated in his lecture on the Bath flora that neither he nor Mr. Broome could ever find the plant about Bath. As remarked in *Fl. Som.*, this wide local scarcity is a curious circumstance.

**850. U. dioica L.** *Common Nettle.*

Native; on waste ground, roadsides, wood-borders, etc.; very common.

June to October.

Miss Livett has at Clevedon a plant approaching *VAR. angustifolia*, with long, narrow leaves scarcely cordate at the base.

The Common Nettle is said to follow man's steps wherever he goes, and to remain on his camping ground long after the explorer has departed, even in regions where nettles had not been previously known. It is certainly remarkable to note their presence on all our ancient British camps in contrast with those hill-tops which have not been similarly made use of. On Cadbury, Dolebury, the summit of Brent Knoll, and wherever primitive earthworks have been raised, the protected area will be found occupied by quantities of nettles, while the turf around and the slopes below may be quite free from imported weeds of any kind.

Nettles have been credited with remedial virtues, and the young tops have been cooked and eaten, from time immemorial. But we no longer collect our own native simples or pot-herbs from the woods and waysides. Our vegetable *materia medica*, so far as it has not given place to synthetic bodies manufactured in German laboratories, is very largely imported. So it is refreshing to read (*Nouveaux Remèdes*, 1909), that within the last few years trials made with a decoction of the common stinging nettle have shown excellent results in treatment of some forms of heart trouble.



## CANNABINACEÆ.

## HUMULUS Linn.

851. *H. Lupulus* L. *Hop.*

Native ; in hedges and thickets ; common.

July and August.

**G.** Crew's Hole ; *Dr. Thwaites* in *Swete, Fl.* Stapleton. Stoke Gifford. Charlton. Hanham. Alveston. Hallen. Pilning. Elberton. Tytherington. Yate Rocks. Horton. Hillsley. Wickwar. Charfield. Falfield. Wotton-under-Edge. Dursley.

**S.** Lock's Mills, Bedminster. Brislington. Flax Bourton. Barrow Gurney. Stowey and Stanton Wick ; *D. Fry.* Chewton Keynsham. Stanton Drew. Pensford. Nailsea. Kenn. Yatton. Portbury. Sparingly at Walton-in-Gordano and by Clevedon. Uphill. Axbridge. Rodney Stoke. Cross, Churchill, and Shipham ; *Fl. Som.* Wedmore. Blackford. Worle. Kewstoke. Wells and Wookey ; *Miss Livett.* Bath, very common ; *Fl. Bathon.*

The barren plant is as much less common than the other as it is the more graceful. It is, however, plentiful in the lanes about Rodney Stoke in Somerset, and along the hillside north of Horton in West Gloucester.

Dr. Syme, in *Engl. Bot.*, appears to be the only British author to make mention of a rather striking variety of Hop in which the leaves are undivided. This form is decidedly rare : we have it in hedgerows near Horton, G. First reported by Miss Roper.

The young shoots, both of native and cultivated plants, when they first issue from the ground in Spring, not only resemble those of *Asparagus* in appearance, but have been described as almost equally acceptable in flavour. On the extensive Severn flats, a few miles north of Bristol, the wild shoots are known to resident cottagers by the name of "asparagus."

[*Cannabis sativa* L. *Hemp.*

An ornamental Alien, sporadic in occurrence, and derived as a rule from bird-seed thrown out with house refuse. Is not infrequent on rubbish heaps or as a garden weed, and has been found on cultivated ground ; but nowhere permanently established.]

## ULMACEÆ.

## ULMUS Linn.

852. *U. campestris* Huds. *U. suberosa* Sm. *U. surculosa* Stokes.

*Common Elm.* *English Elm.*

Native or Denizen ; in hedgerows, fields, parks, etc. Common on the lower ground throughout the district.

March and April.

A number of varieties of Elm have been described, but there is some divergence of opinion respecting them ; and the synonymy of the genus is much involved. See *Ley* in *Journ. Bot.*, 1910, pp. 65, 130.

This tree is commonly supposed to have been introduced by the Romans. A different view is taken by the Rev. Augustin Ley, *loc. cit.* He writes :— “ The English Elm has long been considered not to be indigenous to Britain, owing to its habit of never maturing fruit. It appears, on the contrary, so far as investigation has gone, to be endemic to Britain, its only records of occurrence out of Britain being one or two spots in Spain (Granada and Aranjuez) where the trees are known to have been introduced from this country [after the Peninsular War]. The habit of non-ripening seed is therefore rather to be traced to its success in propagation by suckers.”

Piff's Elm, a Gloucestershire tree, destroyed in 1845, was conjectured to be eighteen hundred years old. Another of great age and now decrepit, in the roadway by Winterbourne Church, is well protected by masonry. Elms of traditional interest stand in cross-roads at Cromhall, and at Brancheross, Wrington. A large tree with variegated foliage stands at the entrance to the Mariners' Path, Sea Mills.

Two tall, straight young Elms, each of about three feet girth and about a foot apart, that grow by the mill pool at Frampton Cotterell, are united at ten feet from the ground by a horizontal cross-piece of diameter equal to that of the boles. This curiosity was brought under notice by Mr. H. Audcent in 1909.

In *A Book of Bristol Sonnets*, by H. D. Rawnsley, B.A. ; 1877 ; we find the following :—

“ The old Elm by the wayside at Abbotsleigh must, from the curious distortion of its roots, claim attention from any passer-by.

Quaint-natured elm, within thy breast must be  
A touch of human sympathy ! Thy blood  
Did never else surround thy years of wood  
With such strange keepers, such a hideous three !  
A bear, a snake, a sloth, all these we see  
Couched at thy roots. . . . .  
Sloth, Cunning, Greed, who, when bare winters come,  
Stand boldly out beneath the cankered home ! ”

**853. *U. glabra* Huds. *U. montana* With. *Wych Elm*. *Broad-leaved Elm*.**

Native ; in woods and hedgerows ; locally common. March and April.

In our suburban avenues it is often planted, as in Queen's Road, Clifton. It seems to me that while in dignity and grandeur the Common Elm may be unsurpassed, no tree excels a well grown Wych Elm in grace and shapeliness.

We had in 1909 a most profuse blossoming of all the Elms. The trees were loaded with *samara* ; those of the Wych Elm in particular falling in showers like snowflakes and covering the ground thickly as do leaves in Autumn. The phenomenon seems to have been general throughout the country, and was followed by signs of exhaustion and impaired vitality, evidenced in the subsequent poor development of foliage. Some trees were observed to be



well-nigh leafless, their whole strength having gone out in fructification : though in that respect *U. campestris* suffered less on account of its seeds being always imperfectly ripened. This unnatural effort was succeeded by a corresponding shortage of bloom in 1910, when little or none could be perceived. I have not met with any attempted explanation of so remarkable a fact in the life history of these trees. It is, however, not unprecedented. Dr. Bromfield mentions that in 1838 both *campestris* and *montana* were loaded with flowers, while in the following Spring scarcely a tree could be found in bloom, he believed, anywhere in Britain.

The fine collection of Elms in Victoria Park, Bath, where nearly forty kinds were planted about 1820, is mentioned by Mr. A. Henry in his paper on Elm-seedlings (*Journ. Linn. Soc., Botany*, 1910). Mr. Henry emphasizes the economic importance of the hybrid "Huntingdon" Elm, of which there is a handsome example in the Bath Park ; and indeed of all first-cross hybrids among forest trees, on account of their extremely vigorous growth and more valuable timber.

## AMENTIFERÆ.

### SALIX Linn.

#### 854. *S. fragilis* L. *Bedford Willow*.

Native in some spots, but almost all planted. Common by rhines, riversides, etc., in the lowlands. April and May.

The late Dr. Buchanan White, in his *Revision of the British Willows*, divided aggregate *fragilis* between two forms, *genuina* (or type *fragilis*) and *britannica*, the latter being by far the more abundant plant in this country, and comprising the bulk of the fertile trees about Bristol ; whilst the former is decidedly scarce. This arrangement of the group has been universally accepted. The distinction between the two forms lies almost entirely in the catkins ; *genuina* having them dense-flowered with stamens much longer than the scales and an ovate-lanceolate ovary, while in *britannica* the catkins are lax-flowered, the stamens scarcely longer than the scales, and the ovary lanceolate-subulate. The leaves do not furnish any marked characters, but appear to be broader and more suddenly acuminate in the typical plant.

Barren trees are extremely rare in this district. There are four small ones on the right bank of the Chew just above Pensford, and Mr. Bucknall tells me of another not far away on the left bank of the river. Mr. D. Fry reported a large barren tree by the Avon near Grosvenor Suspension Bridge at Bath. I believe that these all belong to type *fragilis*, which is represented further by a small number of trees in the Frome valley near Stapleton and Frenchay, and one or two near Clevedon, in Walton withy-bed and by Walton Drove. In the last-mentioned situations many of the willows are undoubtedly native ; but in most localities they have been quite as certainly planted.

VAR. *decipiens* Syme.

Is possibly the hybrid *triandra* X *fragilis*, but of this our willow experts are not convinced. "Seems only a slight variety."—*Bab. Man.* Yet in the last edition of the *London Catalogue* it ranks as a distinct species. The late Rev. W. H. Painter had it from Lock's Mills, Bedminster, a gathering approved and quoted by Dr. Buchanan White. I have seen it in N. Somerset on Kenn Moor; and in W. Gloucester on the Broad Mead, Filton, and near Winterbourne and Charfield.

In my earlier *Flora* (1880–1886) some states of *fragilis*, at that time badly understood, were referred to Smith's *S. Russelliana*; but as the name has been the subject of much confusion and erroneous determination Dr. White advised it to be dropped.

*S. viridis* Fries (*S. fragilis* X *alba*) is stated to be widely distributed in Britain, and is very likely to be present in this district, but I have no note respecting it. It is described as a very variable hybrid, presenting a whole series of gradations between the parents; and, consequently, as being often difficult to identify.

855. *S. alba* L. *White Willow.*

Denizen or Alien; by water and in damp meadows; common. To be regarded as planted wherever it occurs. The fertile tree is the less frequent.

April and May.

When not pollarded, *S. alba* attains the height of 60 feet in deep soil. Trees of that size may be seen by the Frome near Frenchay. It is the prevailing willow in the lowlands between Bleadon, Brent Knoll and Burnham, where ♀ plants are plentiful. In the moors below Cheddar and Draycott also, both barren and fertile *alba* grow together.

856. *S. triandra* L. *S. amygdalina* auct. *Almond-leaved Willow.*

Native; in damp hedgerows, swamps and osier grounds; frequent. May.

**G.** St. Philip's Marsh, Bristol; *Dr. H. O. Stephens.* In the great withy-bed at Bitton. By the Boyd near Doynton. Charfield. Alderley.

**S.** Keynsham; *Herb. Stephens.* Still there, rather plentifully, 1896; *D. Fry.* In a bushy swamp by the G.W.R. between Keynsham and Brislington. Saltford withy-bed, one ♂ and several ♀ bushes; the fertile ones show a slight approach to *fragilis* in the shape of the leaves, but none whatever in that of the capsules. They were considered to be *amygdalina* by the Rev. E. F. Linton; *D. Fry.* Woollard. Walton withy-bed and Clevedon Moor, female and typical, 1884 and subsequently; *D. Fry.* Burnham; *W. B. Waterfall.* In osier-beds and lowland hedges not far from Wells; *Miss Livett.* North Wootton; *Fl. Som.*

VAR. *Hoffmanniana* Sm.

**S.** Ashton Park withy-bed. Several fine trees of this (♂) on the Chew between Chewton Keynsham and Compton Dando, first noticed in 1890; *D. Fry.* Roadside near Burnet, 1889. In several hedges near Clutton.



Claverham ! *Miss Winter*. Several trees by the water-lily pond near Brent Knoll Station, and others at Berrow, 1888 and 1902 ; all these are male and characteristic.

Many of these localities were published in *Journ. Bot.* 1893, p. 117.

**857. *S. purpurea* L.** *Bitter Purple Willow. Rose Willow.*

Native ? in marshes and by water ; rarely on banks near the Channel. Not common, and seldom planted as an osier. March and April.

**G.** Horfield (as *S. Helix*) ; *Thwaites* in *Swete, Fl.* The Boiling Well ; *H. O. Stephens* in *Swete, Fl.\** Two trees in Beck's Pool, Frenchay. One large one by a roadside in the flats near Pilning ; doubtless planted.

**S.** Nailsea Moor ; at first (1884) supposed to be the var. *Woolgariana* and published as such in my earlier book ; subsequently it was judged by Mr. Linton to be nearer type *purpurea* ; discovered by Mr. D. Fry. Coppice near Wellington Terrace, Clevedon, 1884 ; a single tree that may have been planted and is now gone. A great many trees, all barren, grow in one part of the withy-bed on Walton Moor ! *D. Fry*. Cheddar ; *J. G. Baker* in *Fl. Som.* A broad-leaved form (? the Boyton willow) has been known many years on a sandy bank near Berrow Church, and also close to the water-lily pond near Brent Knoll Station. This plant was named *Forbyana* Sm. by Dr. Buchanan White, and was cultivated at Bournemouth by the Rev. E. F. Linton, who said the naming was evidently correct. I have distributed it very widely, at home and abroad. Riverside, Bath (as var. *Helix*) ; *Fl. Bathon. Suppl.*

Very little importance should be attached to many of the " varieties " of *purpurea* which were described by the older British botanists. Extreme states only can be named with certainty. Dr. B. White and Dr. Syme agree that the differences are too slight and too inconstant to be worth much, and that the modifications pass insensibly into each other.

*S. Forbyana* Sm. is believed to be of hybrid origin, and to have in it a recognizable—though certainly not a prominent—strain of *viminialis*.

**858. *S. viminalis* L.** *Common Osier.*

Native ? in damp hedgerows, marshes and withy-beds ; common.

March and April.

I have not observed *S. viminalis* in any really native situation, though it may possibly so occur. Still, being easy of culture and valuable as a basket willow and for general wicker-work, it is far too frequent in the planted state to justify lists of localities. Its long, narrow, strap-shaped leaves suffice to identify this species, which is not so perplexingly variable as the preceding and some others.

\* Several willows formerly gathered by Dr. Stephens at the Boiling Well no longer grow there. The condition of the marsh must have been considerably altered by the construction of the various lines of railroad which run through and by the spot. In particular the huge embankment of the S. Wales Railway appears to have wiped out about a quarter of the whole area, and it is very probable that the missing *Salices* lie buried beneath it.

*S. stipularis* Sm. was recorded early in the last century from "osier-beds at St. Philip's Marsh" by Dr. H. O. Stephens, and ranked in his time as a distinct species with most salicologists. It is now classed as a complex hybrid that has arisen from crosses between *viminalis* and some uncertain members of the *Capree* section, and in which the former is the predominant and only undoubted factor. The St. Philip's osier-beds were eradicated long since, and no willow at present known to me in the district could be placed with certainty under *stipularis*.

**859. *S. Smithiana* Willd.** = *S. viminalis* X the *Capree*. *Silky-leaved Osier*.

Native ? by watersides and also in hedgerows on dry hills, flourishing equally well in either situation ; frequent. April.

An aggregate group, comprising several more or less distinct hybrid plants, all having *viminalis* as one of the parents, and all inseparably connected by intermediates that are likely enough to be secondary or ternary crosses. "These segregates of *S. Smithiana* pass one into the other, and it is often impossible to refer a specimen certainly to either. I have failed to find such a permanency of characters as would serve to definitely separate one form from another."—*Dr. Buchanan White*. I am not aware that any local form can be considered "typical" *Smithiana*.

VAR. ***S. rugosa* Leef.**

**G.** Boiling Well ; *Herb. Stephens*. Rather plentiful there until recently on the Baptist Mills side of the railway, but the locality has undergone much alteration during the last few years. Ditchbanks near the road from Northwoods to Earthcott. Several bushes in the eastern hedge of the Yate Road south of Nibley. These suffer from frequent hedge-trimming. A large clump by a deserted colliery on Engine Common, N. of Yate Station. By a streamside between Charfield Station and Damery Bridge.

**S.** Ashton Park withy-bed. Several trees in a lane leading from Ursleigh Hill towards Queen Charlton and Keynsham ; *D. Fry*. By a footpath near the site of the former Beach Hotel at Portishead. Plentiful by Walton Drove and in Walton withy-bed ; *D. Fry*. On both sides of the way a short distance N. of Walton-in-Gordano on the road to Walton Down ; both barren and fertile plants in some quantity. In several spots about Clevedon—Strode Road, the Dial Hill, etc. ! truly indigenous but the fertile plant very rare : *Mrs. Lainson* and *D. Fry*. Near Cheddar (*Smithiana*) ; between Churchill and Congresbury ; and hedges west of Stoke Lane ; *Fl. Som.* Between Worle and Woodspring. Common on the moors about Brent Knoll, Berrow and Burnham. Near Wells ; *Miss Livett*.

Specimens from many of these localities have been submitted at various dates to Mr. A. Bennett, Mr. J. G. Baker (then at Kew), and Dr. Buchanan White. On some from Walton the last-named botanist commented : "Would, I dare say, be called *S. rugosa* Leef ; which is often near, and sometimes inseparable from, *S. velutinus* ; and is probably a hybrid with *cinerea*."



VAR. *S. ferruginea* G. And.

G. Pond near Dursley, 1868; *Herb. St. Brody*.

S. Several bushes by Ashton brook, not far from the Church.

This is a dubious item. The Ashton plant was referred to *ferruginea* on good authority, but another referee would have placed it with *rugosa*. Its leaves are rather smaller and narrower than those of our other *Smithiana* plants.

Dr. B. White remarks:—"Herbarium specimens named *ferruginea* are rather a mixed lot. . . . Various very different-looking plants have been so named."

VAR. *S. acuminata* Sm.

Is another ambiguous form of doubtful parentage, which is perhaps best left under the aggregate *Smithiana*, though it stands as a distinct species in Babington's *Manual*. It is conjectured to have sprung from a union of *viminalis* and *Caprea*, modified possibly by a second hybridization with *Caprea*. Dr. Stephens records it in Swete's *Flora* from the Boiling Well; and some *rugosa* plants were put under *acuminata* in my earlier book.

860. *S. cinerea* L. *Grey Sallow*.

Native; in hedges, woodland and open ground, often on dry, stony banks as well as by water in the lowlands. Very common and very variable. We have plenty of the typical plant, as well as of slight variations and hybrids.

March and April.

On the brink of a quarry near Conham I once found two bushes bearing both pistillate and staminate flowers on the same branch.

VAR. *S. aquatica* Sm.

With broader obovate leaves, somewhat rugose and glaucous, usually with whitish hairs beneath; generally bushy, seldom becoming a tree; appears to be made up of a series of hybrids with *Caprea* (commonly) and *aurita* (more rarely). As such it is quite frequent throughout the alluvial flats adjacent to the Severn and Channel in both divisions of the district. But these hybrid forms are most difficult to analyse, particularly when, as is sometimes the case, the hybrid shows signs of secondary crossings that bring it nearer to one parent than to the other. The student can obtain abundant material of this doubtful kind from ditchbanks in Gas House Lane, Clevedon, whence many specimens have been distributed by me through several Exchange Clubs; and, I fear, under several different names. Weakness of that sort is a condition common to all of us who try to work out these problems. That which this year seems to be a fact may next year, quite as evidently, be no fact at all. Dr. Buchanan White (*Journ. Linn. Soc.* xxvii, p. 388) had little doubt that a plant collected at Clevedon was *Caprea*  $\times$  *aurita* = *S. capreola* J. Kerner. Another salicologist, equally eminent, held that it was *cinerea*  $\times$  *aurita* = *S. lutescens* A. Kerner. It is impracticable, of course, to form an estimate of the period when these hybrids were originally produced: at present, however, *S. aurita* is not known within some miles of the Clevedon moors.

VAR. **S. oleifolia** Sm.

This has been recorded from the Boiling Well and Horfield (*Dr. H. O. Stephens*) in Gloucestershire; and from Clevedon and Clapton in Somerset. I cannot vouch for either. There is no certainty about the form, and the name has been applied to plants that differ.

**861. S. aurita** L. *Wrinkled-leaved Sallow.*

Native; in damp hedges and bushy places; rather rare and local.

April and May.

**G.** On Dyer's Farm, below Compton Greenfield! *Miss Roper*. Bishop's Hill Wood, near Wickwar, 1910.

**S.** Several low bushes in a green lane on the Pensford side of Lord's Wood, Houndstreet! 1897; *D. Fry*. Bogs near the Mineries on Mendip, 1896 and 1900. Near Wincombe; *W. B. Waterfall*. Plentiful in a lane on Cranmore Hill, near the Tower, one plant bearing both male and female catkins; *Fl. Som.* Frequent about Wells; *Miss Livett*. By the Frome road, a mile south of Mells, 1907. Not uncommon about Bath; *T. B. Flower*.

**862. S. Caprea** L. *Great Sallow.*

Native; in woods and hedgerows in dry situations; common and well distributed.

March and April.

**G.** St. Vincent's Rocks and Clifton Down. Cook's Folly Wood. Kingsweston. Blaize Castle Woods. Hedges between Horfield and Stoke Gifford. Glen Frome near Stapleton. Winterbourne. Yate Rocks. Frequent about the southern spurs of the Cotswolds, near Dursley, Wotton-under-Edge, Hillsley and Horton.

**S.** Leigh Woods, and rocks along the Avon towards Ham Green. Markham Bottom. Failand. Barrow Gurney. Bishopsworth. Stockwood. Whitchurch. Norton Malreward. Houndstreet Woods. Stone Edge Batch and West Hill, Wraxall. Portishead. Weston-in-Gordano. Woodland near Yatton, Cleeve and Congresbury. The Court and Strawberry Hills, Clevedon. Common about the Mendips. Brent Knoll. Bleadon. Wells.

A tree attaining the height of 20 to 30 feet; the earliest species in flowering. It varies to some extent in the breadth and outline of the leaves. Some forms with pointed leaves, tending towards *aquatica* or *cinerea* and suggesting the idea that they may be hybrids between *Caprea* and one or other of those willows, as described in *Fl. Heref.*, are found also in this district.

**863. S. repens** L. *Dwarf Willow.*

Native; in damp heathy and sandy places; local.

April to June.

**G.** Yate Common. Coarse pasture at North Mead, Yate Rocks; *F. Samson*.

**S.** Abundant on sand at the back of Berrow village. In several spots near the Mineries on Mendip. Stratton Common; *Fl. Som.* Plentiful on the peat moors.



A small creeping shrub, from a few inches to three feet high, yielding to none of its congeners in range of variation. A number of differing forms will be met with wherever it occurs. As many as five of the described varieties have been found growing together in a small space; but as these all shade off into each other their characters cannot be relied on. Mr. D. Fry and I, years ago, gave a good deal of time to the examination of our *repens* plants, and we concluded that *S. fusca* Sm. was the commonest with us, and that some specimens from Berrow sands agreed well with the *Engl. Bot.* description and figure of *S. argentea* Sm. The remainder were mainly nondescript. The Messrs. Linton (*Set of British Salices*) considered these forms not to be worth classifying, and discarded the varietal names.

### POPULUS *Linn.*

#### 864. *P. alba* L. *White Poplar.*

A doubtful native, very generally planted. Spontaneous only perhaps at a few spots in swampy woodland, as on Downside Common, Edford; Kingston Seymour; and the peat moor near Ashcot. March.

Earliest local record:—"At Kings Mead near Bath."—*How, Phytol. Brit.* p. 97 (1650).

Many White Poplars have been planted on the flats between Weston-super-Mare and Uphill, and about Berrow and Burnham, where they serve as shelter from wind in the exposed lowlands. Plentiful also by the Avon near Bath. This tree is seldom seen in town shrubberies, though its beautifully white foliage is decidedly ornamental. One old example stands in a garden off the Queen's Road, Clifton. No doubt the abundant suckers that are produced render its presence undesirable.

This seems to be a little earlier than the other species, both in leaf and catkin; but the date of flowering is variable with them all. I have never met with the fertile tree, and Dr. Boswell Syme, in *Engl. Bot.*, said he had never seen a pistillate catkin. Mr. D. Fry obtained some from a tree in Cambridgeshire. I am credibly informed, however, that a fertile tree of 40 ft. stood on the riverside near Keynsham Mills. It was uprooted in the storm of Dec. 16th, 1910.

#### 865. *P. canescens* Sm. *Grey Poplar.*

Denizen; in meadows, hedgerows and woodland; frequent.

February to April.

**G.** A large tree by the Trym near Clack Mill above Sea Mills, and one on Sea Mills Farm. Henbury; *Herb. Powell.* Between Brentry and Charlton; a number of planted trees by the roadside with suckers in the adjoining hedge. Two large trees and six or seven smaller ones, all fertile, in a field hedge half a mile north of Mangotsfield Station; first noticed in 1888. I collected their catkins in several subsequent years, but in the winter of 1908-9 the whole of them were cut down. Two large trees in a field near Willsbridge by Bitton. Three trees on the roadside between Webb's Heath and Siston; two by the

Siston brook near St. Anne's Wells; and two fertile trees in a field hedge by the footpath from Goose Green to Siston Court. One fertile tree near Siston; *F. Samson*. Another ♀ by the roadside at Upton Cheyney, just below where a lane forks towards Lansdown. These are now the only fertile trees known to us in West Gloucester. In an old lane by Northwoods, west of Winterbourne. Wyck; *Herb. Stephens*.

**S.** Leigh Woods. Hedge between Woollard and Compton Dando. Several trees, two of them very large, in a meadow on the left bank of the Chew between Chew Magna and Stanton Drew, and others near the Kennels in the same vicinity; *D. Fry*. Between Stanton Drew and Stanton Wick; *Id.* Two large trees in the Park at Newton St. Loe, and some very fine ones on the Manor Farm at Corston; all varying a little towards *P. alba* in their leaf outline, but not so much as to raise a doubt on their identity; *Id.* One small female tree also on the Manor Farm, at a distance from the male trees and nearer the farmhouse: it was cut down, unfortunately, in March, 1909, together with all the Grey Poplars on the Manor Farm, some of which were exceptionally grand specimens; *Id.* Field hedge on Barrow Hill near Barrow Gurney. Hedge at Hallatrow. Downside Common, Edford. A fine example near the canal at Radford. Several trees in woodland above the old coal canal near Combe Hay, and one by a roadside not far off. A large tree on the hill above Midford. Another fine one on the descent from Lansdown to Weston near Bath. The Oakford valley, St. Catherine's. A number of trees and coppice bushes in a wet wood close to Englishcombe, with a large one in an adjoining pasture. One fertile tree in a field at Lyncombe, Bath, 1894; *D. Fry*. If this still stands it is the only ♀ example known in our Somerset division. Plentiful on roadsides etc. about Burnham. Kewstoke Bay.

Through an unfortunate misapprehension this species was excluded from the *Flora of Somerset*. But the author's doubt respecting the plant's presence in the county was easily removed, as appears from his note in *Journ. Bot.* 1897, p. 146. I understand that Mr Murray left an instruction that the paragraph questioning the correctness of my specimens should be deleted from his book.

*P. canescens*, when it attains great size, is doubtless a troublesome tree in pasture land on account of the very numerous suckers it throws out, sometimes to an astonishing distance from the tree itself.

With reference to the rarity of the fertile plant in the South-west, Dr. Bromfield (*Phytol.* III, p. 843 etc.) states that although Grey Poplars are abundant in Hampshire he could never obtain any pistillate catkins; and the author of *Fl. Hants*, writing half a century afterwards, merely cites the remarks of his predecessor. The majority of writers are silent on the point.

Some careful attention is needed before the relation between *P. canescens* and *P. tremula* can be understood. The former is at first a puzzling tree owing to an extreme variableness of the leaves both in shape and clothing. Those on the young shoots simulate to some extent the leaves of *P. alba* in outline and felting, while on older wood of the same tree are found others—bald and rounded—that closely approach those of *P. tremula*. Again, the



foliage of suckers and stump-shoots in both species is much alike in shape and quite different from that of the mature trees, but is always greyish-white felted below in *canescens*, and green and velvety in *tremula*. Such resemblance as there may be between the two does not extend, however, to the catkin structure, which is adequately characteristic. With regard to the question of hybridity, no difference whatever can be discerned between the staminate catkins of *canescens* and those of *alba*, which would hardly be the case if the former were a hybrid. Still, the facts stated do give some colour to the opinion of those botanists who regard *canescens* as a cross between *alba* and *tremula*.

### 866. *P. tremula* L. *Aspen*.

Native; in woods and hedgerows; frequent.

February to April.

**G.** Blaize Castle Woods. Kingsweston; *Swete, Fl.* Bank of the Frome near Stapleton. Three old trees of 30 feet (♂) in a pasture hedge on high ground between Filton and Charlton, throwing out suckers far into the adjoining fields, and flowering well in 1909, though no catkins could be seen in 1911. These are the only barren trees known to me in West Gloucester. Hedges on the north of Mangotsfield Station. Two large trees in a roadside hedge between Goose Green and Siston; *F. Samson*. Some small trees with many suckers by Ivory Hill. Goosegreen Farm, north of Yate Station; *Miss Roper*. A well-grown tree by the roadside, and many bushes in the hedges hard by, between Rangeworthy and Hall End. Here, too, were suckers many yards away from the tree, which was bearing fertile catkins in good order on March 25, 1910. Charfield. Abundant in woodland on the South Ridings, east of Wickwar.

**S.** Plentiful in the preserved portion of Leigh Woods, both as tall trees and as coppice bushes, much of the latter being the var. *villosa* O. F. Lang. Many small trees on the rocky river-bank, nearly opposite Sea Mills, where they certainly were never planted. Among these are four small barren ones growing together; the only ♂ examples known in North Somerset. First noticed by me in 1880. Since that date these have been several times cut or broken down and have shot up again. They flower at irregular intervals; sometimes together with the fertile trees but not always in the same season. Occasionally several years elapse between the flowering periods. On Feb. 18, 1894, the handsome male catkins were fully developed, but there was then no sign of inflorescence on the female ones. Keynsham. Several trees in a roadside hedge between Woollard and Houndstreet; *D. Fry*. One large tree by the roadside at Stanton Drew; another big one near Chew Magna on the direct road thence to Compton Martin; and two small ones (*villosa*) in a wood near Stowey; *Id.* Portishead; *Herb. Powell*. Yatton; *Miss Winter*. Many trees in a field hedge under Sandford Hill, 1897; *D. Fry*. Bishop's Wood, Wells; *Miss Livett*. Burtle Moor; *D. Fry*. Not uncommon in moist woods; *Fl. Bathon*.

With us the form *glabra* is far more common than *villosa*, although Dr. Syme remarks that the latter, in general, is the prevailing form.

The bark of the large trees of *P. tremula* at Stanton Drew and Chew Magna

is very rugose and fissured; the distinction therefore which Syme makes in that respect between *canescens* and *tremula* cannot be relied on, at least in old trees.—*D. Fry.*

When trees of this species are coppiced, the shoots that spring from the stumps during the first year or two bear large, cordate-ovate, pointed leaves, very hairy beneath (as on the suckers); and as the young wood strengthens and becomes again tree-like the leaves assume the ordinary shape and lose their pilosity.

**867. *P. nigra* L. True Black Poplar.**

Denizen? in woods and hedgerows; rarely in swampy ground with the appearance of a native; rather rare. March.

**G.** An old tree leans across the bottom of the "second Zigzag" close to the railway under Clifton Down. Swampy bank of a stream in woodland east of Hillsley, barely within the district.

**S.** A large tree at Corston; *D. Fry.* Banks of the Chew between Coley and South Widcombe. A number of small trees in the marshland between Brent Knoll and Berrow, and a few stunted ones by the golf links near Berrow Church.

It is probable that other local stations will be reported for this Poplar, which has not long been separated from *P. monilifera*. Its long-pointed leaves are wedge-shaped at the base, and its trunk is roughly burred.

**868. *P. serotina* Hartig. *P. monilifera* Aiton. Black Italian Poplar.**

Alien or Denizen. In woods and hedgerows; often near water but occasionally on rock; generally planted. March.

**G.** St. Vincent's Rocks; the "Poet's Tree," under which Mr. Gabbitas had a stall for the sale of his effusions. Some fine trees at one time in Combe Dingle, full of mistletoe; but some of these have been removed. Bank of the Frome at Frenchay. Large trees are plentiful in the extensive woodland south of Inglestone Common, between Wickwar and Hawkesbury, and on the stiff clay in Wickwar Lower Woods.

**S.** A tree in coppice opposite the Failand Inn. By the river at Chew Magna. Several large trees near the river at Saltford. Clevedon. Portishead. Yatton. Wells.

Until recently this was the Black Poplar of most botanists, having been confused with the true *P. nigra*. It is much the more frequent of the two. As it grows with great rapidity, it has been widely planted throughout the country, more commonly than any other Poplar. It is readily distinguished from *P. nigra* by the comparatively smooth bole, and leaves *truncate* at the base with short points.

**MYRICA Linn.**

**869. *M. Gale* L. Sweet Gale. Bog-myrtle.**

Native; in peat bog; very local.

May and June.



**S.** Plentiful on the peat moor between Burtle and Glastonbury.

I now include this, with one or two other bog plants that grow only on the southern border of the district, probably but not positively within the area of Sander's Map. Our exact limit as it crosses the peat moor cannot be precisely defined.

In an examination of original peat soil taken from the British Lake Village at Glastonbury, some leaves of *Myrica* were identified by J. G. Baker, F.R.S.—*Proc. Som. Arch. & Nat. Hist. Soc.*, 1894.

"There is a shorte bushe that groweth in the Fenne which is called in Summersetshyre Goul or Golle, and of the apothecaries in Englande Myrtillus, because the leaves are well smellynge and are lyke unto the leaves of wilde Myrtus. . . . It is tried by experience that it is good to be put in beare, both by me and by diverse other in Summersetshyre."—*Turner, Herb.* iii, p. 47 (1568).

### BETULA *Linn.*

**870. B. verrucosa** *Ehrh.* *B. alba* *Koch.* *White Birch.* *Silver Birch.*  
Native; in hilly woods; rather common. April and May.

At times there are to be seen upon this Birch (as for many years on those in front of Saville Place, Clifton, and in the Zoological Gardens, but fewer now than formerly), clusters of twigs resembling big nests—"witches' brooms"—sometimes a dozen or more together. These abnormal growths are of the nature of galls, produced by insects or by fungi. In either case an arrest of development occurs; the branches cease to grow in length, and produce a mass of adventitious buds. I have seen it stated that if a twig from one of these brooms be grafted on another tree, that tree will likewise become a broom-bearer.

"In most cases the exciting cause of this malformation is a parasitic fungus, while in exceptional instances colonies of insect pests, phytophagi, act as irritants and induce the abnormal growths."—*Jas. Saunders in Journ. Bot.*, 1908, p. 117.

**871. B. tomentosa** *Reith.* *B. pubescens* *Ehrh.* *B. glutinosa* *Wallr.*  
*Birch.*

Native; on heathy and peaty ground; local. Abundant in wooded portions of Shapwick and Ashcot peat moors. April and May.

This is usually more of a bush than a tree, and I think is seldom planted.

I have not made systematic notes on the distribution of the Birches in the district, as I have often felt some degree of uncertainty in determining plants that are met with. Babington stands almost alone in making two separate species of the aggregate *B. alba* L. As a rule they are treated as varieties. These, in their extreme states, are sufficiently distinct, but there are many intermediates linking them together. Characters derived from the catkin scales are not so well marked as to be always satisfactory, and my south-country experience has led me to place little reliance upon them.

A list of the purposes for which the Birches have been found useful would

be a long one, and range from a favourite instrument of punishment to garden brooms, canoes and cottars' huts. The graceful, pendent twigs and leafage have naturally found a place in decorative greenery. It is on record that—"John Stone, brewer, Mayor of Bristol in 1562-68-71, kept a watch on Midsummer night and St. Peter's night in his last year of office. . . . The doors of the richer citizens were dressed out with green stuffe—birch or long fennel—and adorned with garlands and gay flowers. Tables before the doors were set out furnished with sweete breade and good drinke, whereunto they would cordially invite their neighbours and the passers-by, and be merry with them in great familiarity."—*Bristol : Past and Present*, p. 254.

### ALNUS Mill.

#### 872. *A. glutinosa* Gaertn. *A. rotundifolia* Mill. Alder.

Native ; common on riverbanks, etc., but occurring also on rock, as in Leigh Woods opposite Sneyd Park, where it would not have been planted. March.

Alder trees of unusual size are to be seen by the Frome at Iron Acton and near Winterbourne ; and along the course of the Land Yeo stream below Flax Bourton. The cut-leaved variety (*A. incisa* Syme) is in Newton Park near Corston.

In the minds of most people the true home of the Alder will be by running water, and few would expect to see it planted in the shrubberies of rocky Clifton. Yet, at an earlier period, it must have been in favour with many gardeners, for trees of fair size are not infrequent on the hill. In Chesterfield Place there are two, sadly disfigured by lopping but usually full of fruit ; and others stand in Sunderland Place, Hanbury Road, Guthrie Road, Cotham Hill, Sneyd Park, etc. Possibly the Alder may possess those properties which enable the Yellow Flag to bear transplantation from marsh ditch to garden border without injury. In the Danish forests, where Alders abound, individual trees are to be found on rocky ground ; and, according to Wager, they sometimes attain a greater age and finer form than in the swamps.

### FAGUS Linn.

#### 873. *F. sylvatica* L. Beech.

Possibly native in woods on limestone and oolite ; common too in hedges, parks and plantations. March and April.

Our most extensive beech-woods are on the dry, stony and barren soil of the Gloucestershire hills—steep flanks of the Cotswolds—where the tree-roots spread far and wide near the surface, and the tough leaves that decay so slowly form a thick carpet in the flowerless shade. Very little vegetation can exist in the twilight of a beechen wood, but those plants that do prosper are of the rarer sort, as *Monotropa*, *Cephalanthera pallens* and *Elymus europæus*.



## CASTANEA Mill.

874. *C. sativa* Mill. *Sweet or Spanish Chestnut.*

A doubtful native, no doubt usually planted, but we see it flourishing in our aboriginal woods, where it may have existed from time immemorial. Common. May.

I do not agree with the opinion sometimes expressed that the Sweet Chestnut is *always* planted, or increases solely by suckers, and does not propagate itself from seed. There are certainly woods in the neighbourhood of Bristol where seedling chestnuts, sprung from chance-sown seeds, can readily be found.

"Authorities have stated that this tree was introduced in Britain by the Romans, who had it from Asia Minor and probably carried it all over the Continent. It is a curious fact that in every European language the name is similar in sound; and, like the botanical name, was apparently derived from the town of Castanea in Thessaly."—*Hulme*.

The oldest trees I have met with near the city are in the Old Park between Abbotsleigh and Failand, and at the north end of Frenchay Common. There are several handsome ones of fair size in Leigh Woods near the Avon.

The venerable Chestnut in Tortworth Park is justly celebrated, and is probably the most interesting tree in the county. Loudon, in the *Arboretum Britannicum*, writes: "The old Chestnut at Tortworth may possibly have been one of those planted by the Romans. It is mentioned as a farmer's or boundary tree in King John's time, and is stated to have been so remarkable for its magnitude in the reign of King Stephen (1135), as then to be called the Great Chestnut of Tortworth." In 1712 Sir R. Atkyns mentioned it as being nineteen yards in compass; and there is a record of the old trunk having borne fruit in 1788. Strutt, who described it in his *Sylva Britannica* (1820), gives the circumference at 5 ft. from the ground as 52 ft., and its cubical contents, according to the usual method of measuring timber, to be 1965 feet. At the present day, however, nothing remains of the original trunk but a mass of decayed wood, around and among which are four new boles. The largest of these has nearly taken the place of the old one, and the collective girth is still about 50 feet. In summer the whole is a mass of rich foliage, covering a circle of about 100 feet diameter.

Visitors to Tortworth will find that while a close view of this venerable tree can be obtained on all sides, an unclimbable fence prevents the possibility of damage, and that the spot is evidently well cared for.

## QUERCUS Linn.

875. *Q. Robur* L. *Q. pedunculata* Ehrh. *Common Oak.*

Native; in woods and hedges; very common.

April and May.

Not many remarkable Oaks have come under my notice in the district. One, of very unusual size and age, stands in the grounds of "The Holmes," Stoke Bishop; and it is on record that an ancient boundary-oak on Staple Hill marked a western corner of Kingswood Forest, and was known until

comparatively recent times as the "Staple Hill Oak." It stood near the Bristol Road, half a mile or so west of Mangotsfield. Another, probably a boundary-tree, stands by some cross roads at Northwoods, west of Winterbourne. A very fine tree in Leigh Woods, growing apparently in deep soil on a fault or cleft in the rock, has been shattered in its prime by storms. Some vigorous, handsome trees are contained in Ashton Park, and Mr. D. Fry speaks of a few others between Marksbury and Houndstreet.

A little way to the north of the ancient manor house of the Gaunts at Gaunt's Earthcott, standing alone in a large pasture, is the decaying ruin of a magnificent Oak that might carry us back to a period when there was little of an agricultural character in the surrounding country, and a great Royal hunting forest extended far to the East and North. This manor was included in the "King's Park of Alveston," an area which, according to Mr. John Letimer, was specially reserved from deafforestation in the Charter signed by Henry III. in 1228; and this Oak may be the very last survivor from the forest that then existed. It died long ago, *hors-de-combat* after warfare with the tempests of many hundred years. We now see only a bare, barkless stump, crowned with a mass of humus and surrounded by a thicket of elder, hawthorn and brambles, amid which are lying big weather-worn fragments of the patriarch's last fallen limbs. The trunk forked at no greater height than ten or eleven feet, showing that the shape of the tree was that usually assumed when growing in the open—short-stemmed and wide-spreading. At four feet from the ground its present girth is nineteen feet, but more than another foot would have to be added for a measurement taken before the bark fell away.

Dr. C. E. Moss, who has done important ecological work in the Bath and Bridgwater district, and whose masterly article on the British Oaks should be consulted in *Journ. Bot.* 1910, writes to me:—"All the Oaks of the Somerset woods on deep marls and clays, and on the Carboniferous Limestone, are, so far as I have observed (and I have looked critically at thousands of trees), *Q. Robur* = *Q. pedunculata*."

HYBR.  $\times$  *sessiliflora* = *Q. intermedia* Boenn.

**G.** Stapleton, 1844; *Thuaites* in *Herb. Watson*; and 1846; *H. O. Stephens*, *ib.* "Stapleton, near the Snuff Mill;" *Herb. Stephens*. Still there, 1910, on pennant in Glen Frome. A tree in the corner of Stoke Bishop Churchyard, not planted there as it seems to me, but enclosed; is nearer to *Q. Robur* than to *sessiliflora*, but has the stalked leaves bearing multiple hairs.

**S.** Several trees in Leigh Woods, by the Roman Encampment and on Lily Point; well marked 1910.

This hybrid has been clearly described, and its origin explained, by Dr. Moss, *loc. cit.*

**876. *Q. sessiliflora* Salisb. Durmast Oak.**

Native; in woods and hedges; rare.

April and May.

**G.** Cook's Folly Wood, 1906. Stapleton Woods; *Sweet, Fl.* Still there, 1910.



**S.** Northern edge of the Roman Encampment, and in the enclosed portions of Leigh Woods; typical at Lily Point on both sides of the railway! Brislington; in St. Anne's Wood and that part of Fox's Wood adjoining the G.W.R.! A very fine specimen on high ground above the left bank of the Chew at Compton Dando; *D. Fry*. Portbury; *Misses Hill and Peacock*. Portishead Woods. Coppice above Congresbury; *Fl. Som*.

*Q. sessiliflora* is quite exceptionally scarce in this district. It appears to be much more plentiful in the hilly woods of the north of England and in Wales, occurring abundantly on shallow non-calcareous soils of the bleaker and colder uplands, sometimes to the total exclusion of *Q. Robur*.

Modern writers on wood-craft with very few exceptions (Mr. F. Townsend in *Fl. Hunts* stands almost alone) lay stress on the superiority of the durmast oak as a forest tree, both in beauty and in clean timber, over the pedunculate species. The latter is stated to be inferior in its tendency to gnarling and twisting, and in not ripening its wood nearly so regularly as the durmast. The comparative immunity from insect attack, as shown by the absence of galls or oak-apples, indicates the greater vigour of the durmast in our climate. Hitherto, unfortunately, an oak has been an oak in the matter of planting, and foresters have rarely asked questions about species. Nurserymen's stock often consists entirely of pedunculate oaks, so that much mischief may have been done in our woodlands by an almost exclusive distribution of an inferior tree. *Q. sessiliflora* is the handsomer tree in foliage, and its wood is probably tougher and more durable, although authorities are not agreed upon the point. The roof of Westminster Hall is said to have been constructed in the 14th century from Irish timber of this species. The black oak of our bogs is also stated to belong to it; and it has been concluded that the chief part of our natural woods, many centuries ago, was of the same nature, although that is by no means the case at the present day.

It is pointed out in the *Flora of Herefordshire* that the straighter branching of *sessiliflora* is traceable to the fact that the terminal bud of the year's shoot is much more fully developed than the three or four which cluster around it: hence in the succeeding Spring it takes the lead, and thus continues the direction of the previous year's axis of growth. In *Q. pedunculata*, on the contrary, the terminal bud is very often smaller and less developed than those which surround it; one or more of these therefore take the lead in producing shoots in the following Spring, and their direction forms an angle with that of the last year's shoot. When growing in poor soil, or when from any cause the vigour of the tree is not sufficient to allow more than one such bud to start, we get the zigzag direction of branches commonly associated with our idea of an English Oak.

Messrs. Ley and Purchas observe further that the two species can be distinguished in winter, when leaves are not available, by differences in the buds. In *Q. sessiliflora* the buds are much more pointed in outline: the scales pale and membranous on the margins. In *Q. pedunculata*, on the other hand, the buds are blunter, almost globose, and their scales uniform in colour and texture, more horny, and deeper in tint.

It is not believed that the short interval which has been observed between the times of flowering of the two species would debar them from hybridizing ; and it will be noticed that at Stapleton, as well as in Leigh Woods, the intermediate oak is found in company with both the reputed parents.

# CORYLUS *Linn.*

## 877. *C. Avellana* L. *Hazel.*

Native ; in woods and hedges ; very common. November to February.

The ancient art of divining or "dowsing" for hidden springs of water by means of a forked twig of hazel, is nowhere more extensively practised than in the neighbourhood of Bristol.

# CARPINUS *Linn.*

## 878. *C. Betulus* L. *Hornbeam.*

Native or Denizen in woods and hedgerows ; rather rare. More common as planted. April and May.

**G.** In woodland on Clifton Down near the Great Quarry ; the largest tree overlooks the Avon and the Gully. Among beeches in a copse by Sea Mills. Baptist Mills. Stoke Park, Stapleton ; some tall trees which were probably planted. Lawrence Weston ; *Miss Roper*. Hedges near Downend, 1883 ; and a couple of bushes near Leap Bridge, 1902. A fine tree in pasture by the Frome under Cleve Hill. Tytherington Hill. Yate Rocks. Dodington Park.

**S.** Leigh Woods, certainly native but not frequent. Coppice opposite the Failand Inn. A good many full-sized trees on the wooded slope which extends from near the railway viaduct at Pensford towards the Chew Magna road ; growing with Oak and Ash and looking there quite like a native. Some trees, probably planted, at Stanton Drew ; *D. Fry*. Brockley Combe ; *H. S. Thompson*. Plentiful in several places on Backwell Hill, Chelvey Batch, Hill Scar, etc. ; and apparently indigenous in that locality. Hedges on Mendip about Shipham and Sidcot. Frequent on damp stiff soils ; *Fl. Bathon*.

A few years ago a remarkably large Hornbeam—the biggest I have met with in the Bristol district—stood in a field hedge on the Montpelier side of Baptist Mills. In height it was about 50 ft. and the head as much or more in diameter. It was cut down in 1904.

The male flowers appear before the female, as early as the beginning of April in some seasons ; while the fruiting catkins may not be fully developed until the end of May.

Hornbeams may be seen in many of the older gardens around the city—Cornwallis Grove, Richmond Hill, Cotham Hill, etc.—but are seldom planted in modern villadom.



## GYMNOSPERMÆ.

## CONIFERÆ.

TAXUS *Linn.*879. *T. baccata* L. *Yew.*

Native; in nearly all old woods upon the Carboniferous Limestone. Locally common. March and April.

It is abundant in Leigh Woods, and about the rocky hills and combes of Bourton, Backwell, Brockley, Cleve, Burrington, Dolebury and many like situations on the Mendips.

Several indigenous Yews of immense age exist in the limestone woodland of Chelvey Batch and Bourton Combe. I recall one, on the verge of a bare cliff with hardly a trace of soil beneath it, that encircles with its gnarled and knotted roots—hard as iron almost—a great slab of rock which has been raised and shifted by the tree's irresistible force, although its weight may be a couple of tons or more.\* Other especially fine trees are in the churchyards of Norton Malreward and West Harptree, and in the villages of Churchill and Compton Martin. But perhaps the finest and most perfect Yew in the district grows in Winscombe churchyard, where the sheltered position has preserved it for many centuries. A larger, more ancient, but less perfect tree, with a trunk seven yards in girth, is enclosed in the vicarage grounds. These trees may have been planted when Winscombe Manor was a possession of Glastonbury Abbey, and their age may approach 1000 years. It has been conjectured that the Yew may reach an age of 2500 to 3000 years.

The older botanists, not realizing the diœcious character of the tree, made two distinct species of the barren and fertile plants respectively. Thus Gerard, for instance, describes a "*Taxus glandifera bacciferaque*, the Yew bearing acorns and berries;" and a "*Taxus tantum florens*, the Yew which only floures."

The name is supposed to be derived from the Celtic *iw*, green. The spelling of the English word in old volumes is most variable. Hulme gives a list of about fifteen such variations—eu, ewe, yewgh, etc. A great deal has been written about the ancient practice of planting yew-trees in churchyards. As an emblem of mourning or of immortality the Yew was used in funeral rites by the Egyptians, Greeks and Romans, from whom it may have been adopted by the Britons. Some writers opine that this tree was especially cultivated

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\* "From the deep fissures of the naked rock  
The yew-tree bursts! Beneath its dark green boughs  
Where broad smooth stones jut out in mossy seats,  
I rest; . . ."

Written in Brockley Combe, 1795, by S. T. Coleridge.

in the sacred groves of the Druids : that when Christianity succeeded paganism the same sites were used for the new worship ; and that thus arose the association of yew-trees with our own churches. The propriety of planting in burial places trees so suggestive of silence and gloom has been widely recognized. There is authority also for believing that yew-trees were often planted to protect primitive buildings from wind and storm and likewise to supply good material for longbows and crossbows. For the latter purpose cultivation in a churchyard would be most suitable—the spot offering little or no risk to grazing cattle. Horses, cows and sheep have often died from eating yew bark or foliage, and the stones of the fruit are likewise poisonous. It is worthy of note that in many English counties the yew-trees are invariably found on the south side of the churches.

In quite recent times there has been introduced from Western America a tree so curiously resembling the Yew in foliage that, when not in fruit, one can be readily deceived and may regard it as some slight variation of our native plant. But the *Taxodium* (*Sequoia*) *sempervirens* Rich., or “Redwood,” is of a distinct genus, monœcious in character, bearing cones, and in its native land becomes a tree of immense height. The leaves spread more regularly horizontal than do those of the Yew. The coined word *Taxodium* was intended to convey the meaning “very like a Yew.” Loudon wrote in 1842 that the tree had not yet been introduced into this country. I am indebted to Miss Roper for pointing out that two or three Redwoods and a Yew grow side by side in Filton Churchyard.

### JUNIPERUS *Linn.*

#### 880. *J. communis* L. *Juniper.*

Native ; on hills to the north and east. Very rare and local. May.

**G.** On the N.E. of Stinchcombe Hill near Dursley, in small quantity ! *Miss Raymond Gingell.* I understand that it is more plentiful to the northward, nearer Stroud.

**S.** West side of Bathford Hill ; *Herb. Flower.* On Hampton Hill ; *Fl. Bathon. Suppl.* Abundant on Monekton Farleigh Hill, going up from Warleigh Ferry, some of the trees 18 to 20 feet ; *D. Fry.* Between Hemington and Laverton, on forest marble marls ; *H. F. Parsons in Fl. Som.*

Dr. St. Brody, in his *Flora of Weston*, gives a locality near Uphill which has not been confirmed.

### PINUS *Linn.*

#### 881. *P. sylvestris* L. *Scotch Fir.*

Native possibly, in some few spots. No doubt generally planted.

May and June.

This tree is, at the present time, indisputably a native of North Britain ; and as cones and trunks of the species are found in bogs of the south of England there can be no doubt that in a former period it existed as an aboriginal throughout the country. Now, of course, like other useful and ornamental



trees, we see it mainly in cultivation. In special reference to the Bristol district, the following paragraph taken from the *Flora of Somerset* shows how this question of nativity has been regarded by several well-informed local botanists.

"In a very interesting lecture on 'The Bournemouth Firs' by the Rev. L. Blomefield, read at Bath in December, 1885, the author gives reasons for believing that some of the firs growing in scattered clumps on the hills near Bath may be of native origin. Such, he thinks, may be the case with 'a few old scattered, scraggy, forlorn-looking firs growing on Combe Down.' A few old trees, some merely stumps, used to be seen by Mr. Broome, near Sham Castle. And Mr. T. F. Inman notes trees scattered upon Kingsdown, Banner Down and Lansdown. The lecture concludes with these words:—'Taking Mr. Inman's notes as a whole, I consider there is evidence to show that these trees once existed in much larger numbers; and . . . sufficient to warrant the question: Was there not formerly, in prehistoric times, if not later, a forest of Scotch Firs covering all the hills by which Bath is surrounded? I cannot but think the answer to this question, if answer be possible, would be in the affirmative.'"

The oldest and most interesting firs that I can mention are in the peat of Walton Moor, near Clevedon. The Walton valley was not drained until the beginning of the last century, so that these trees must have originated and lived through their prime in the midst of impassable bog; though doubtless their roots are in the underlying stratum of gravel and clay. Without doubt, too, they were self-sown, for the seeds of Scotch Fir can germinate and thrive in the wettest morass. It has to be borne in mind that peat is, broadly speaking, the product or remains of ancient forests. These aged firs at Walton, therefore, may well be indigenous survivors or descendants from primeval woodland.

## PHANEROGAMIA.

## MONOCOTYLEDONES.

## TRILLIACEÆ.

PARIS *Linn.*882. *P. quadrifolia* L. *Herb Paris.*

Native ; in woods ; frequent. Plants bearing five or even six leaves are not rare. April and May.

**G.** Near Shirehampton, 1842 ; *S. Freeman* in *Phytol.* I, p. 327. Stapleton Wood ; *Swete, Fl.* Berwick Wood above Hallen ; *Herb. Powell.* Rather plentiful there in 1902. Bean Wood, Chipping Sodbury ; *Rev. E. Johnson.* Calebs, near Northwoods ; *Miss Roper.* Woods between Charfield and Tortworth. Westridge Wood, Wotton-under-Edge. Lower Woods, Wickwar ; *Miss Roper.* Dursley ; *Miss Raymond Gingell.*

**S.** In Leigh Wood, opposite the Black Rock ; *Stephens Cat.* 1835. *Ibid.* " ascending the path opposite the Black Rock, varieties with three and five leaves ; " *Chilcott's Clifton Guide*, 1846. *Ibid.* May, 1851 ; *J. H. Cundall.* *Ibid.* 1877 ! *A. Leipner.* Reported to be still there, but I have not seen it for many years. Very sparingly at Failand ; *Miss Agnes Fry.* Stockwood ! *Swete, Fl.* Maes Knoll. Norton Malreward. Portbury ; in Charlton Woods and in a detached wood to the eastward. The Rectory Wood, Wraxall ; *J. W. Eves.* Portishead Hill ; *D. Fry.* Woods between Portishead and Weston-in-Gordano. Limeridge Wood above Tickenham. King's Wood, Yatton ; and Col. Long's Woods above Congresbury. Featherbed Lane near Clutton ; *D. Fry.* Plentiful in Paul Wood between Clutton and Temple Cloud ; and in a wood on Rush Hill near Farrington Gurney. Ston Easton ; *D. Fry.* Long Wood, north of Cheddar Gorge ; *F. Samson.* Rodney Stoke Wood ; *Rev. E. S. Marshall.* East Harptree Combe ! *Herb. Lawrence.* Compton Martin ; *Rutter's Hist.* (1829). Still there in 1911. Crox Bottom, Gurney Slade. Ham Woods, near Croscombe ; *Miss Roper.* Scattered through a small copse near Sidcot on Mendip, 1885 and 1901. Plentiful in woods from Binegar to Asham ; *Rev. R. P. Murray.* Chilcompton ; Laverton ; and Babington ; *Fl. Som.* Abundant about Wells ; *Miss Livett.* Woods between Midford and Hinton Charterhouse. Wood on Fortnight Farm. Collett's Wood, Prior Park. In several other woods near Bath ; *Fl. Bathon.*



Earliest local record:—" *Solanum tetraphyllum*, sive *Herba Paris*, . . . quin potius raro et perquam jucundo spectaculo meminimus fuisse nobis amicisque nostris Bathoniæ Helvetiorum, dum Thermas illic inuiserimus:"—*Lobel. Advers.* p. 105 (1570).

## DIOSCOREACÆ.

### TAMUS *Linn.*

**883. T. communis** *L. Black Bryony.*

Native; in hedges and thickets; frequent.

May and June.

**G.** Westbury-on-Trym. Kingsweston. Henbury. Filton. Charlton. Stoke Gifford. Patchway. Hambrook. Frenchay. Almondsbury.

**S.** Leigh Wood. Abbotsleigh. Failand. Long Ashton. Bishport. Upper Knowle. Stockwood. Whitechurch. Dundry. Ursleigh Hill. Stanton Drew. Chew Magna. Norton Malreward. Clutton. Portbury. Wraxall. Englishcombe. Combe Hay. Rather common about Clevedon, Weston-super-Mare and Wells. Frequent near Bath; *Fl. Bathon.*

A most elegant, graceful climber; and far more generally distributed than the White Bryony. Although absent from Scotland, it is of wide occurrence in most English counties, and in many districts is esteemed too common to need any detailed list of localities.

There is a point of histological interest about *Tamus*. It is the only British Monocotyledon whose rhizome shows a system of secondary thickening due to the activity of a cambium layer.

## HYDROCHARIDACÆ.

### HYDROCHARIS *Linn.*

**884. H. Morsus-ranæ** *L. Frog-bit.*

Native; in peaty ditches of the lowlands; locally common. July and August.

**G.** Shirehampton Marshes; *Swete, Fl.* and in 1884 by *W. E. Green*. "Awkley"; *Herb. Powell*. Marshes between Hallen and the Severn. Below Wotton-under-Edge; *V. R. Perkins*.

**S.** Ditches in the Walton and Clapton Valley; and in the marsh-lands near Nailsea, Tickenham, Yatton, Clevedon and Weston-super-Mare. Throughout the Cheddar Valley and the South Marsh generally as far as the southern limit of the district.

ANACHARIS *Rich.*

**885. A. Alsinastrum** *Bab. Elodea canadensis* Michx. *Water-Thyme. American Water Weed.*

Alien; in ditches, streams and ponds; common. First noticed near Bristol about the year 1856. May to September.

After flourishing to an extraordinary extent during a period of thirty or forty years after its introduction to this country, and becoming a veritable plague in our watercourses, the vitality of this curious aquatic began to fail, probably from the absence of the male plant; and the quantity observed of late in the rhines and ditches of this district, as in others, has very perceptibly diminished.

## ORCHIDACEÆ.

ORCHIS *Linn.*

**886. O. morio** *L. Green-winged Orchis.*

Native; in old pastures. Rather common and widely (though not evenly) distributed. May and June.

It is often abundant in cowslip meadows, where the blossom contrasts pleasantly with that of its neighbours. Plants with pure white flowers have been observed in fields near Hallen, G.; and at Failand, Stanton Drew and Compton Martin, S.; as well as the intermediate shades, from pale rose to purple. The green veining of the sepals appears to be constant.

**887. O. mascula** *L. Early purple Orchis.*

Native; in moist woods and hilly pastures, well distributed throughout the district. May and June.

The flowering is a fortnight earlier than with *O. morio*. White-flowered plants grow in a meadow near Henbury, G., and on Worle Hill, S.; *Mrs. Gregory*. The variety is pure white without spots, and is constant. Plants of this species occasionally produce flowers without spurs. In a specimen of this kind forwarded to me from Shepton Mallet the corolla-lip was likewise absent, and the flowers presented a very peculiar appearance.

**888. O. ustulata** *L. Burnt-stick Orchis.*

Native; in elevated calcareous pastures; very rare. May and June.

**G.** Formerly on Durdham Down; *T. B. Flower*. Cook's Folly Wood; *Swete, Fl.* Wyck Cliffs; *Camden's Britannia*, p. 414; and *Swayne* in *Withering*. Now extinct, I should say, in all three localities.

**S.** Formerly on Leigh Down; *T. B. Flower*. Weston-in-Gordano; *Rev. G. W. Braikenridge*, and *T. B. Flower* in 1850. Northern slope of Wavering Down, "six or more plants together within the circumference of a foot"!



*W. F. Miller.* Is mentioned also by the author of *A Mendip Valley* as occurring on Wavering Down. Worle Hill near Weston-super-Mare, May 16th, 1838; *Miss Elton* in *Herb. Powell*. Pastures near Christ Church, Weston-super-Mare; *St. Brody, Fl.* The "Burnt Tip Orchis" is stated by Mr. F. A. Knight to be a characteristic plant of Brean Down. I have no other record for that locality. Claverton Down, Bath! scattered over several acres of open pasture, thirty or forty plants in some seasons. This habitat has been reported by many botanists of the past and present generations, and I learn that the flowering stems are sometimes gathered there for sale in the city. The late Mr. A. E. Burr wrote to me in 1888: "It grew, according to the Bath Flora, in a field at the back of Claverton Farmhouse, but I could never find it there. Usually fed off, I suppose; or when mowing-grass, as now, one cannot get about in the field, so one is done, either way! However, it grows as you know rather freely in another place."

The "Burnt Stick," when in good order, is a most beautiful plant. Together with other Orchids, it was successfully cultivated by Peter Collinson, F.R.S., in his garden at Mill Hill, Hendon, Middlesex. He wrote (*MS. circa 1760, Phytol. N.S. vol. 5.*) "It hath been sent us from near Bath, . . . and flowers freely in the Orchis bed." His method was to place the roots in a soil and situation as natural as possible, and to allow grass and herbage to grow around them. Mr. Collinson died in 1768.

The English name, with the French *Orchis brûlé*, is derived from a marked resemblance of the flowering spike to the burnt end of a whitish stick. The tip, composed of buds, is almost black—a very dark purple—but the flowers become paler as they expand, and are nearly white before they wither.

### 889. *O. maculata* L. *Spotted Palmate Orchis.*

Native; in meadows and damp woodland; common and generally distributed.

June and July.

#### HYBR. *maculata* × *latifolia*.

**S.** Marsh on the right bank of the Chew above Pensford, associated with typical *maculata* and *latifolia*; *D. Fry*.

Mr. Fry observes: "This plant has the leaves of *maculata*, but approaches *latifolia* in its hollow stem, much broader and less deeply cleft labellum with the lateral lobes ultimately reflexed and marking confined to the centre (not scattered over the whole surface including the middle and lateral lobes as in typical *maculata*); in its much thicker spur, longer and stouter germen, more reflexed lateral sepals, and much larger and more conspicuous bracts. The general colour of the flowers is purplish, whereas in *maculata* type they usually have a nearly white ground. All the books describe the stem of *maculata* as solid, but I do not find this to be invariably the case."

Similar hybrids are on record from Devon (*Briggs; Journ. Bot.* 1889); from Hampshire (*Townsend, Fl.*); and from Oxfordshire (*Druce, Fl.*). They may prove to be of general occurrence.

The Pensford locality is now, unfortunately, by no means so well stocked with orchids as at the date of Mr. Fry's observation, some twenty years ago.

**890. *O. latifolia* L.** *Broad-leaved Marsh Orchis.*

Native; in marshes and wet peaty meadows; frequent. May and June.

**G.** Filton Meads, no longer plentiful. Between Stoke Gifford and Patchway. Alveston. Aust. Abundant in meadows between Thornbury and Cowhill, and near Oldbury-on-Severn. Siston. Abson. Between Yate and Westerleigh. Wet fields on the Pucklechurch Road, not far from Lyde Green. Marsh below Yate Rocks; *Miss Roper*. Charfield. Near Chipping Sodbury. Hawkesbury Common. Dursley; *Miss Gingell*.

**S.** Leigh Woods; *Swete, Fl.* Still there in a low-lying marsh near the Avon. Wet ground between Abbotsleigh and the Tan-pits. Failand; sparingly in spots where water has lain during the winter; *D. Williams*. Meadows under Dundry Hill. By the Chew between Chewton Keynsham and Compton Dando. About Pensford (misprinted "Keynsham" in *Fl. Som.*), quite typical; *D. Fry*. Moist peat in the Clapton and Walton valley. Nailsea and Kenn Moors. Marshes under Stone-edge Batch near Tickenham. Yatton. Meadows in the Yeo valley near Langford, Compton Martin and the Harptrees. Hinton Blewett. Litton. Max Bog, and peaty meadows in the valley below Winscombe. Lympsham. Burnham; *Rev. E. S. Marshall*. Wedmore. On the peat moors, but less plentiful than *O. incarnata*. Frequent about Wells; *Miss Livett*. Not uncommon in the neighbourhood of Bath; *Fl. Som.*

The plant we have in this district is, I believe, the usual British form of the species. It is not so strongly marked as Continental *latifolia*, and on that account we often have some difficulty in determining whether specimens belong here or to the next species, there being little doubt that, in Britain, the two are connected by intermediates. For this reason, doubtless, Syme in *Engl. Bot.* placed them as sub-species under an aggregate "*O. palmata*;" but I perceive no advantage in so doing. In this country we never see plants with the broad, obtusely-rounded and spotted lower leaves that are met with in Central Europe.

The flowers of our *latifolia* are deep crimson-purple, varying little in tint, with cylindrical spurs (not conical as in *O. incarnata*), and the lower leaves—they perish early—are spreading, broadest above the base, blunt and flat at the tip. Mr. F. Townsend (*Fl. Hants*, p. 409) noted that the leaves have a duller surface with coarser texture and fewer stomata than those of *incarnata*. The latter possess a smoother and more even tissue, with distinct stomata, giving to the whole under-surface a satiny, shining appearance.

The figure of this plant in *Engl. Bot.*, ed. 3, shows a very slender form with spotted leaves, such as I have not seen in the vicinity of Bristol. And, as there are many copies of Curtis' work in the possession of Bristolians, it may be well to mention that the plate labelled *O. latifolia* in the *Flora Londinensis* gives, in fact, a fair representation of *O. incarnata*.

**891. *O. incarnata* L.** *Marsh Orchis.*

Native; in bogs and peaty meadows; rather local but sometimes plentiful. May and June.



**G.** Filton Meads. Hallen marshes. Compton Greenfield. Low-lying pasture, wet in winter, between Shortwood and Pucklechurch. Wickwar.

**S.** Meadows between Dundry Hill and Barrow Gurney. Boggy fields in the Max valley below Winscombe. Marshes in the lowlands between Brent Knoll and Burnham. Berrow, 1885 and subsequently; *D. Fry*. Frequent in the Cheddar Valley. Abundant on the peat moors.

A plant of more slender growth than the preceding and characterized by its erect, narrow, bright green leaves broadest at or close to the base, never spotted but slightly hooded at the tip. Bracts markedly incurved (*Sherring*) and usually all longer than the pale-coloured flowers, which vary much in tint from white to rose or light purple.

The late Mr. C. Baron Clarke maintained (*Journ. Linn. Soc.* vol. xix), that the true *incarnata* of Linneus should have no trace of purple in the flower, but that the colour should always be a pale, slightly yellowish rose, becoming more yellow as the flower fades; and that there should be a strong internodal line around the lip. This is the rarer form of the species in England, though it appears to be prevalent in Scotland. It seems to me that obviously (and more especially in the dried state) the nature of the foliage must furnish the only tangible and satisfactory means of separating this plant from *O. latifolia*. French and German writers emphasize the leaf characters, but lay little stress upon the flower hue, allowing a wide latitude in tints. "Fl. purple, rarely white."—*Koch, Syn. Fl. Germ., etc.*, ed. iii. "Fl. more or less dark purple, or lilac or white."—*Gremli, Fl. der Schweiz*. "Fl. d'un rouge clair, marquées de points plus foncés."—*Boreau, Fl. du Centre*. "Fl. de couleur de chair, souvent blanches."—*Gren. & Godr. Fl. de France*. Reichenbach (*Orchid. der Deutsch. Fl.*) says that the colour of the flowers of *O. incarnata* may be purple, white, yellowish or straw-yellow, and he figures fourteen named varieties, some peculiar to the North of Europe and some to the South. In every country it must be considered a decidedly variable species.

*O. incarnata* flowers quite a fortnight earlier than the last species.

**892. *O. pyramidalis* L. *Anacamptis pyramidalis* Rich. *Pyramidal Orchis*.**

Native; on downs, banks and rough hillsides, chiefly on limestone and oolite, plentiful in many places. In the Avon Gorge a good deal of it has been destroyed.

June and July.

**G.** St. Vincent's Rocks; *Sweete, Fl.* Grassy slope on Clifton Down, 1849; *Herb. Cundall*. Frequent in Cook's Folly Wood; *T. B. Flower* in *Phytol.* I., (1841). Rocky spots by Cook's Folly Wood, 1849, 1850 and 1851; *J. H. Cundall*. Several plants on the brink of the Black Rock Quarry, Sea Walls, 1904! *C. Wall*. About ten there in 1906, and fewer in 1910. Kingsweston Hill and Henbury; *Herb. Powell*. Blaize Castle; *J. Foster* in *Sweete*. Stapleton, 1842; *Herb. Stephens*. Railway banks near Horfield and at Patchway, 1884. Sparingly with Bee Orchis in a rough pasture at Woodlands, between Patchway and Almondsbury, 1906. Tytherington Hill. Wyck Rocks; *T. B. Flower*.

Plentiful on oolitic hills above Wotton-under-Edge, North Nibley and Dursley. Wickwar.

**S.** By the Avon under Leigh Wood, scarce, 1904. Banks on both sides of the high road between Whitechurch and Pensford. Ursleigh Hill near Pensford; and on roadside banks going up from Chew Stoke to Dundry, in fair quantity; *D. Fry*. Here and there in upland pastures between Woollard and Queen Charlton; and between Compton Dando and Keynsham. Some fifty plants in a wood near Chewton Keynsham, 1911. Portishead. Weston-in-Gordano. Grassy roadsides between Failand and the top of Wraxall Hill, seldom spared by the road trimmers. Along the base of the ridge between Wraxall and Stone-edge Batch. Tickenham and Cadbury Hills. Clevedon. Outskirts of the Congresbury woodland. Worle Hill. Weston Hill; *St. Brody*. Uphill. Brean Down. Between Buckland Dinham and Great Elm; *H. F. Parsons*. Plentiful near Wells; *Miss Livett*. Stony hills above Combe Hay. Abundant about the Brass Knocker; *A. E. Burr*; and frequent around Bath.

### GYMNADENIA *R. Br.*

#### 893. *G. conopsea* *R. Br.* *Fragrant Orchis.*

Native; in peaty meadows and upland pastures, apparently indifferent to the nature of the situation; frequent. June and July.

**G.** Filton Meads; in the wettest enclosures. Stoke Gifford, 1840; *T. B. Flower*. Alveston; *Herb. Powell*. Oldland. Pastures under Shortwood near Pucklechurch; *Swayne* in *Withering*. Near Wyck Rocks. Doynton. Stone, near Falfield; *Beatrice Jones*. Wickwar; abundant in open woodland. In pastures at 500 ft. near Hillsley. On Breakheart Hill above Dursley. About Wotton-under-Edge; *V. R. Perkins*.

**S.** Field near the Wesleyan Chapel, Failand, sparingly! *D. Williams*. Pasture N.W. of Dundry Hill, and in others W. of the reservoirs. Abundant in some seasons on Potter's Hill at 600 ft. Wood border, Portbury, in small quantity; *Misses Hill and Peacock*. Weston-in-Gordano; *Rev. G. W. Braikenridge*. Near Clevedon; *W. E. Green* and *T. B. Flower*. Meadow near Hutton; *St. Brody*. The Yeo valley, in abundance; *Dr. Gough*. Peaty meadows by Max, near Winscombe. Cheddar, 1850; *Herb. Lawrence*. Tining's Farm and Blackdown on Mendip, only a few plants. But the author of *Fl. Som.* found plenty in some old pasture land above Cheddar. On Mendip above Draycott, 1883; *Rev. E. S. Marshall*. Between Buckland Dinham, Mells and Great Elm; *H. F. Parsons*. In Whatley Parish, not far from Asham Wood; *Rev. S. Laing*. Moors near Wells; *Misses Livett and Mayow*. Behind the farm on Claverton Down, 1887; *D. Fry*. Several stations east of Bath are given in *Fl. Bathon. Suppl.*

The white-flowered variety is a most lovely plant. It seems to have been very seldom recorded, and is evidently rare. About forty, of the purest white and very fragrant, were found with the ordinary form near Mells some years ago by Mr. W. Withers. I have heard of a solitary specimen on Quantock, and Mr. W. F. Miller has it from Switzerland.



[*ACERAS* R. Br.*A. anthropophora* R. Br. *Green-man Orchis*.

Native, at one time apparently, in North Somerset; but now extinct. The circumstances connecting it with the Bristol flora were explained by me in a note published in *Journ. Bot.* 1907, of which the following is a copy.

"In May last [1907] I was conducted by Mr. A. E. G. Way through the Clifton 'wild garden,' where he cultivates the majority of British flowers and is remarkably successful in his treatment of orchids. Among many other species I saw a fine patch of *Aceras*, numbering some twenty strong plants. These, Mr. Way assured me, had been derived from a few roots found by him about fifteen years ago in a rough pasture on high ground between Portishead and Clevedon, on the ridge that overlooks and runs parallel with the Channel about twelve miles from Bristol. Mr. Way at that time used the land as a game preserve, and fears that his keen-eyed keeper, whom he instructed to take up some of the roots, must have lifted them all, for he failed to find any more of the plant afterwards, although he searched repeatedly in succeeding seasons, until his tenancy of the land ceased. He has never obtained roots of *Aceras* from any other source. The place described is a large enclosure of primitive upland pasture on Weston Lodge Farm, at an elevation of about 300 ft. in the parish of Weston-in-Gordano. The Carboniferous Limestone rock crops out through the turf here and there, and carries a characteristic vegetation of *Helianthemum Chamæcistus*, *Trifolium dubium*, *T. filiforme*, *Spiraea Filipendula*, *Thymus*, etc. Portions of the ground are separated by wire fencing for game-breeding purposes, and these positions are shifted from time to time. The matter is naturally of much interest, seeing that this orchid is essentially an Eastern Counties plant, apparently unknown hitherto farther west than Berkshire. But I notice that Mr. Preston, in his *Flowering Plants of Wilts*, states that it has been reported from three stations in that county, although he had seen no specimens. It is unfortunate that so rare a plant cannot be shown to exist to-day in North Somerset, but it is possible that there may be a future reappearance on the ground where Mr. Way found it."

*HABENARIA* Willd.894. *H. viridis* R. Br. *Frog Orchis*.

Native; in meadows and hilly pastures; rather rare. It seldom occurs in any quantity, and the greenish hue of its flowers amid mowing grass is not easy to detect.

June and July.

G. Filton Meads; *Swete, Fl.* I have seen it there on several occasions, but not during the last ten years. Moist pastures between Henbury and Patchway. Alveston, 1835; *Miss Knapp* in *Herb. Powell*. Gaunt's Earthcott. Pasture above Wotton-under-Edge. Field between Nunnery Lane and Gravel-pit Wood, Dursley; *Miss Raymond Gingell*.

S. In several fields between the Bridgwater Road and Dundry Hill. Failand; in many fields laid up for hay; *D. Williams*. In similar fields between Failand Hill and Pill. Portbury. Nightingale Valley, Weston-in-Gordano; *Miss Livett*, and *Mr. Tyers* in 1907. One plant in a ten-acre field on Portishead Down, 1910: several persons searched for half an hour but could find no other. East Harptree, June, 1850; *Herb. Lawrence*. The Yeo valley, in mowing grass; *Dr. Gough*. Pastures on Mendip above Cheddar. Goatchurch Gorge, Burrington; *Miss Roper*. Hutton. Mells. Beacon Hill and Tadd Hill; *R. V. Sherring*. In some plenty towards Shepton Mallet, 1909; *Miss Garaway*. Claverton Down and elsewhere near Bath; *Fl. Bathon*. Peter Collinson, F.R.S., wrote in 1760 that a plant forwarded to him from Bath was then flowering in his garden.

895. *H. bifolia* R. Br. *Lesser Butterfly Orchis*.

Native; on moist peaty meadow land; rare and local, and uncertain in appearance. Nearly all the records purporting to relate to its distribution in the Bristol district are for the aggregate plant before *chlorantha* was differentiated, and belong to the latter, which is by far the commoner species.

June and July.

**G.** Formerly on Durdham Down (in the first half of the last century); *T. B. Flower*. Filton Meads; *Swete, Fl.* Now quite gone, I believe.

**S.** Moist fields near Max bog, below Winscombe; *Mrs. Gregory*. Bushy places on the peat moors, 1856; *T. Clark*. Shapwick and Ashcot moors, 1892 and 1894, abundant in the latter year; *Mrs. Gregory*. But when I accompanied Mrs. Gregory in 1895 we could not find a single specimen; it was not until 1907 that I met with about a dozen plants on ground that I had walked over repeatedly in previous years.

This is a plant of open ground, shorter and smaller in all its parts than the Common Butterfly Orchis; from which it may be at once distinguished by the *parallel* anther cells and very slender, cylindrical, horizontally directed spur. The general distribution of the two plants is different; *H. bifolia* being the common species of northern countries, while *H. chlorantha* takes its place in Central and Southern Europe.

**896. *H. chloroleuca* Ridley. *H. chlorantha* Bab. Common or Greater Butterfly Orchis.**

Native; in woods and shady places, distinctly sylvestral; frequent.

May and June.

**G.** Rarely on the wooded slope of the Downs between the Great Quarry and the Gully. Cook's Folly Wood; *T. B. Flower* in *Swete*. Formerly plentiful on the Southmead side of Filton, in a small wood which has been destroyed. Duchess Woods, Stapleton. Woods between Patchway and Charlton. Henbury; *Herb. Powell*. Berwick Wood; *Spencer G. Perceval*. Cleve Wood, by the Avon between Hanham Ferry and Bitton. Shortwood near Pucklechurch; *Swayne* in *Withering*. Lady's Wood, two miles south of Wickwar. Abundant in Bishop's Hill Wood, Wickwar. Very plentiful in the Lower Woods, Wickwar; *F. Samson*. Woods about Wotton-under-Edge and Dursley.

**S.** Leigh Woods; persistent, but in very small quantity. I have seen solitary plants at various times, in different parts of the woodland—public and private—and single specimens have been many times reported by other observers. Failand; in several spots; *D. Williams*. Abundant in a copse in the Wild Country, between the Filter Beds at Barrow Gurney and Yanley Lane, 1911. Stockwood. Bishopsworth. Charlton Woods near Portbury; *Misses Hill and Peacock*. Nightingale Valley and Weston Big Wood, Weston-in-Gordano. Limeridge Wood near Tickenham. Woods near Yatton and Congresbury. Clevedon; *Rev. G. W. Braikenridge*. Norton Malreward. Chewton Keynsham. Featherbed Lane, between Stanton Wick and Clutton; *D. Fry*. Hutton Woods. Banwell. Christon. Shuteshelve near Axbridge. Charterhouse on Mendip; *Miss Roper*. Ebbor. Wookey Hole; *Fl. Som.* Buckland Dinham, Great Elm, and Babington; *Dr. H. F. Parsons*. In profusion on Twine Hill; at Dinder; and other places near Wells; *Miss Livett*. Wood near Kelston. Warleigh Wood and the Brass Knocker, Bath; *D. Fry*. Frequent in woods near Bath; *Fl. Bathon*.



A much taller plant than the preceding, with flowers perceptibly broader and of a purer white. The anther cells, wide apart at the base and inclined together upwards, are characteristic. The fact that the specific names *chlorantha* and *chloroleuca*, signifying a greenish-yellow flower, have been attached to the species which least merited the appellation, has aroused a good deal of regretful comment.

### OPHRYS *Linn.*

#### 897. *O. apifera* *Huds.* *Bee Orchis.*

Native; on downs, banks and poor pasture land, chiefly on limestone and oolite. Rather common, and in some seasons plentiful, but sharing in the uncertainty which affects the flowering of the whole *Orchis* tribe. It is, however, so well distributed over most of the suitable ground in our area that, had it been a plant of little interest, an enumeration of localities might not have been thought necessary. But in the case of such a fascinating species, so universally attractive both for its beauty and for its peculiar type of structure, I think that all available detail respecting its local status, whether historical or topographical, will be generally acceptable. June and July,

**G.** The records of an earlier age show that in old times the Bee Orchis must have been abundant on St. Vincent's Rocks, and on Clifton and Durdham Downs; but, as might be expected, it has now almost entirely disappeared. In most seasons at the present day not more than a dozen plants will be found, confined to a few comparatively secluded spots. Sir Joseph Banks saw it in plenty "on St. Vincent's Rock near the Limekiln," June 18, 1767. His specimens are in *Herb. Brit. Mus.* "By the side of the Footway going to the new Well House;" *Banks and Lightfoot*, June 25, 1773. The course of this track can still be traced as far as the ground has remained unquarried; and by its side the Bee Orchis continues to show itself with a regularity that seldom fails. "On the high ground behind the old Well House, near where the *O. muscifera* grows, but less plentiful;" *Shiercliff's Guide* (1789); and *Withering's Arr.* (1796). St. Vincent's Rocks and Durdham Down; *Swete, Fl.* (1854). Rocks and rubble by the Avon under the Downs. Mr. C. Wall counted over a hundred plants along the railway in June, 1906, an exceptionally good year for orchids. In the greatest abundance about the Rock House near Cook's Folly, 1840; *T. B. Flower in Phytol. I.* Cook's Folly Wood, 1849; *Id.* Henbury; *Herb. Powell.* Kingsweston Down, 1880. Field on the south side of Kingsweston Down, and one plant only on Combe Down near Henbury, 1871; *Spencer G. Perceval.* Abundant in a field S.E. of Berwick Lodge, 1882; *Id.* Between Patchway and Northwoods. Plentiful in poor pastures at Cables, west of Winterbourne. Almondsbury. Old Down by Tockington. Alveston Churchyard. Cromhall Common. Hill pastures above Wotton-under-Edge and Dursley. Wickwar.

**S.** Bank of Avon about the Portishead Railway, and on slopes under Leigh Woods. Roadside near Abbotsleigh, and in two adjacent fields; *E. F. Young.* Failand Hill in several places, especially plentiful on rough ground



F. Candall del.

*Ophrys Trolitii.*



West, Newman photolith.

*Koeleria vallesiana.*





towards the Failand Inn. Whitechurch, 1881. Hundreds on a railway bank between Brislington and Whitechurch, 1907. Ursleigh Hill near Pensford. On the Clevedon roadside near Wraxall. Tickenham Hill and Cadbury Camp. In several spots at Portishead, and along the coast downs towards Walton. On the hills at Clevedon. Sheltered grassy banks under the Yatton and Congresbury woodland, where Mr. D. Fry has seen some hundreds blooming together. Barley Wood, Wrington. Sandford Hill. Cheddar. Shipham; *Fl. Som.* Top of Mendip at "Wright's Piece," near a larch plantation; *Dr. C. E. Moss.* Worle Hill. Uphill, in great profusion, 1885 and 1892. Brean Down, in plenty, 1885 to 1903. Frequent on Steep Holm; *Jno. Storrie.* Abundant among the sand-hills near Burnham; *J. C. Collins* in *New Bot. G.* (1834). Still there, 1885 and subsequently. Dune marsh near Berrow, 1880. Ebbor, Easton, and Lyat, near Wells; *Miss Livett.* Buckland Dinham, Beckington, Oldford and Great Elm; *Dr. H. F. Parsons.* Frequent about Dunkerton, Combe Hay, Duncorn Hill, Englishcombe and Claverton near Bath. Some other localities are given in *Fl. Bathon.*

#### FORMA *albida*.

In the best specimens of this striking variation the foliage is pale, the sepals are pure white, and the remaining floral organs light yellowish green with not a trace of the customary brown and purple variegation. It grows usually in fair number among a quantity of more gaily tinted typical companions.

**G.** Fields near Alveston, in some seasons plentiful. Abundant about an estate near Almondsbury; *J. H. Priestley.* Between Patchway and Northwoods, 1906. A good many plants in poor pasture on Caleb's Farm near Northwoods, 1904-5. Between Rudgway and Old Down, Tockington.

That this "elegant representative of a white-winged, yellow bee" has been long known in our neighbourhood is shown by the statement in *Phytol.* p. 175 (1861), that a Mr. Robins of Bath gathered ten or twelve in full bloom in 1760 at Rancomb in Gloucestershire.

#### VAR. *Trollii* Reichb. fil. *Wasp Orchis.*

A beautiful form, and certainly well worthy of distinction as a true variety of *O. apiifera*. The central lobe of the labellum, viewed in front, presents a long triangular outline four times as long as broad, tapering from the base into an attenuate, little-reflexed point. The tinting of the lip is paler and more yellow than in the type; and the sepals are rather longer and more acuminate. "Labello acute triangulo elongato lobis lateralibus plus minusve obsoletis."—*Reichb. Iconogr.*

The Wasp Orchis appears to be remarkably rare in this country, and is not noticed in all British descriptive floras.

**G.** "In the year 1787 I had a present of three roots of the *Wasp Orchis*, found at Clifton near Bristol, of which one root flowered finely in the year 1791; the lip very narrow, yellow and streaked with dark purple, very analogous to the insect it is named after."—*Michael Collinson MS. (Phytol. N.S. V, p. 175).* Cook's Folly Wood, June, 1851 (as "Drone Orchis"); *Herb. Cundall.* One



plant by the railway under the Downs, 1900. A dozen in one spot and one in another, 1907. Three in quite a different place, 1908, and more in the following year. None could be found anywhere in 1910. A few in 1911.

**S.** Stony bank by the Avon under Leigh Woods; four plants in July, 1885. One in Tyntesfield Park, 1908. One on Mendip between Sidcot and Axbridge, 1907.

It seems that there are two *Ophrys* variations bearing the name "*Trollii*." The Rev. E. S. Marshall kindly compared an accurate pen-drawing of the Bristol plant with the original descriptions, and he concluded (*Journ. Bot.* 1907, p. 378) that ours agreed well with *VAR. Trollii* Reichb. fil., a good variety of Bee Orchis differing markedly from type in characters of the labellum; but is by no means identical with the *O. Trollii* described as a species by Hegetschweiler, and beautifully figured in Max Schulze's *Die Orchidaceen Deutschlands, Deutsch-Oesterreichs und der Schweiz*. The latter was only once found near Winterthur in Switzerland. It had the bracts much longer and more leafy, the sepals narrower and more acute, and the lip only half as broad at the base, longer and more tapered. Mr. Marshall's investigation indicates that variations of this kind in Britain will be more correctly put to *VAR. Trollii* Rehb. fil. than to *O. Trollii* Hegetschw.

The younger Reichenbach supposed that the characters of his variety were due to growth in deep shade, but the Bristol examples are always found in full exposure to sun.

[**O. aranifera** Huds. *Spider Orchis*.

There has been no confirmation of the locality given in *Fl. Bathon. Suppl.* on the authority of the late Mr. J. Jelly.

In *Phytol.* iv, p. 1055, Mr. T. W. Gissing relates that in June, 1853, he gathered the Late Spider Orchis (*O. arachnites*) on St. Vincent's Rocks, together with some other rarities of extremely improbable occurrence. Neither of the Spider Orchids is at present known in the West Country.]

### 898. *O. muscifera* Huds. *Fly Orchis*.

Native; in open woodland and on bushy banks; rare, but well distributed.

May and June.

**G.** Old writers agree that this *Ophrys* used to grow with the Bee Orchis on St. Vincent's Rocks and Clifton Down (where I have never seen it); and that it was at one time even more plentiful than the latter. "*Ophrys myodes*. Searched St. Vincent's Rock again with Mr. Kaye, and found it in a shrubby bank near the New Well House, 27 May, 1767."—*Journal of Sir Joseph Banks*. "*St. Vincent's Rocks, behind the New Hot Well*."—*Shiercliff's Guide*, 1789. "On the high ground at the back of the old Well House, St. Vincent's Rocks."—*Withering, Arr.* (1796). St. Vincent's Rocks, sparingly; *Swete, Fl.* (1854). In a wood just under Cook's Folly, plentifully, June 1773; *Banks and Lightfoot*. Specimens of that date from Banks are in the British Museum Herbarium. Cook's Folly Wood; *Mr. Rogers in Stephens Cat.* (1835). That which remains to us of this wood was thoroughly searched lately in two following seasons, without success. Woods near Dursley; *Herb. Stephens*. Waterley Bottom, between Wotton and Dursley; *C. Bucknall* and *V. R. Perkins*.

**S.** Leigh Wood; sparingly in several spots, both in shade and on open stony banks above the river. There are Leigh specimens in *Herb. Powell*,

1847; and in *Herb. Cundall*, 1851. Swete had it (1854); and W. E. Green in 1876. Dr. Prowse showed it to me in 1882 and 1883. In 1884 there were six plants in one place and three in another. A solitary one on exposed rock in 1888 and one in 1898. Others have been reported so recently as 1908. Woods at Weston-in-Gordano, frequent. Mr. D. Fry once found six plants together in the Big Wood. West Park Wood, N. of Cadbury Camp, 1911; *F. Beames*. "The Fly Orchis grows in Limeridge Wood, near Tickenham."—*Rutter's Hist. N.W. Somerset* (1829). This statement has been repeatedly confirmed by Leo Grindon, D. Fry, A. E. G. Way and others. I saw at least twenty plants in a small space on the skirt of the wood in 1907. Not one there in 1908, but plenty again in 1910. None in 1911. In and about a wood near Fortnight, not far from the *Cephalanthera pallens*, 1882, and subsequently. Smallcombe, Bath, 1859; Hampton Rocks and Combe Hay, 1869; *Herb. Flower*. Abundant in woods, especially in one called the Brake Wood, near Combe Hay. Brass Knocker Wood, 1887; *A. E. Burr*. Edge of Claverton Wood; *Miss Peck*. Several of these localities, with others, are recorded in *Fl. Bathon*. The Fly Orchis has proved to be unusually frequent in the vicinity of Bath.

Earliest records:—"Orchis myodes prima, floribus muscam exprimens; this grew on a hill, South-west of Bathe."—*Johnson, Merc. Bot.* p. 54 (1634). "*Orchis Myodes major*; the greater Fly Orchis: we received three roots of it from a gentleman at Bath. It flowered early in May of this present year, 1760, making a fine appearance in our collection here" [Hendon, Middlesex.]—*Peter Collinson, MS. (Phytol. N.S. V, p. 174)*.

In reference to the mysterious irregularity in occurrence of this plant and its congeners, which depend on the visits of particular insects for fertilization of their flowers, it is interesting to note that Detto (*Botany of To-day*; *Scott Elliot*, 1910), found in 1903 that only 29 out of 1388 flowers of *O. muscifera* had set seed = 2·1 per cent; and in 1904 only 79 out of 1048 flowers = 7·5 per cent. The Spider Orchis succeeded in getting only 6 to 8 per cent of its flowers fertilized.

### HERMINIUM *R. Br.*

#### 899. *H. Monorchis* *R. Br.* *Musk Orchis.*

Native; very rare.

June and July.

**S.** "*H. Monorchis* grows in a field between Buckland Dinham and Great Elm (square 19 of Sanders' map), in company with *Ophrys apifera*, *Habenaria chlorantha*, *Orchis pyramidalis*, *Spiranthes autumnalis*, *Gymnadenia conopsea* and about half a dozen commoner orchids;" *Dr. H. F. Parsons*. Dr. Parsons saw it there on several occasions, and the Rev. S. Laing tells me that two years ago he counted fifteen plants at the spot. Messrs. Bucknall, Fry and Withers, however, were less fortunate in their search. They could find none, either there or at Mr. Horner's station. Newberry Hill; *G. Horner* in *Fl. Som.* Hill pastures near Bath; *Fl. Bathon*. There has been no confirmation of the Bath record in my time, and the plant was unknown to Mr. Flower.

Miss Livett received (1892) from a correspondent, specimens gathered at Pilton, south of Shepton Mallet, and just within our limit.



**SPIRANTHES** *Rich.***900. S. autumnalis** *Rich. Lady's Tresses.*

Native; on dry calcareous downs; very rarely in the lowlands. Rather common on limestone, though more abundant some years than in others, and generally uncertain in appearance. August and September.

**G.** Very thinly scattered over Clifton and Durdham Downs. The space opposite the Zoological Gardens has long been a favourite locality. Plentiful thereabout in 1840 and subsequently; *T. B. Flower*. Clifton Turnpike, 1828; *S. Rootsey*. St. Vincent's Rocks and Durdham Down; *Swete, Fl.* Frequent on Combe Down near Westbury, and at Penpole Point. Pur Down near Stapleton. On a small common by Leap Bridge near Downend. Bitton. Wyck. Nibley Knoll; *V. R. Perkins*. Stinchcombe Hill.

**S.** Leigh Down, formerly in some quantity; and although the most productive ground is now enclosed, the plant still comes up in the turf of lawns. Rocky hillsides by Providence Place and Ashton Tump. Ashton Park. Rough heathy pastures on Upper Failand, plentiful. Open ground on Wraxall Hill. Ursleigh Hill, near Pensford. Walton-in-Gordano, and along the limestone ridge towards Portishead. One plant in the peat of Walton Moor, 1904. Near Yatton. Hillsides, Clevedon; *D. Fry*. Worle Hill. In the lawns at Ellenborough Park, Weston-super-Mare, 1882. Purn Hill, Bleadon. Sandy pastures on the Uphill Road; *St. Brody*. Uphill; *Rev. E. S. Marshall*. Burnham; *W. B. Waterfall*. Callow Hill near Sidecot. Cheddar. Hill pastures on Mendip in many other places. Miss Livett reports that in some seasons (1888 and 1907 were exceptionally good) this plant is found in quantity on several hills near Wells, e.g. Arthur's Point, Rookham, Tor Hill, Milton, Pilton, etc. But in 1889 and some other years she could find none on those hills. Barrow Hill near Great Elm; *H. F. Parsons*. Frequent on high ground about Bath.

**LISTERA** *R. Br.***901. L. ovata** *R. Br. Tway-blade.*

Native; in woods and moist shady places, sometimes in pastures and open ground; common throughout the district. May and June.

Specimens with three leaves, one placed above the lower pair, have been noticed on the skirt of Leigh Woods; *C. Alden*: near the top of Wraxall Hill; *Misses Cundall*: and Mr. H. Audcent informs me that the variation is frequent in Prior Park, Bath.

An unusual position for this plant is on ditchbanks in the lowlands between Worle and Woodspring.

**NEOTTIA** *Adans.***902. N. Nidus-avis** *Rich. Bird's Nest.*

Native; rather frequent in both counties. It is most often found in beech woods, in deep shade amid thick underwood, where plenty of rotten stumps and decaying leaf-mould form a congenial soil. May and June.

**G.** Stoke Bishop Wood. Berwick Wood and Haw Wood, near Henbury and Hallen. Duchess Woods, Stapleton. Frequent in woods about Tortworth, and in the Park. The Lower Woods, Wickwar; *Miss Roper*. Woods above Wotton-under-Edge. Stinchcombe Hill. Folly Wood, by Woodmanecote. Hermitage Wood, Dursley; *Miss R. Gingell*.

**S.** Leigh Woods, 1840; *T. B. Flower*. *Ibid.* 1849; *J. H. Cundall*, and *Dr. H. O. Stephens* in *Swete, Fl.* Sandy Lane, between Abbotsleigh and the Tan-pits; and in the adjoining wood, on several occasions. Portbury Woods; *Misses Hill and Peacock*. Portishead. Nightingale Valley, Weston-in-Gordano. Limeridge Wood, Tickenham; *D. Fry*. Bourton Combe; *Miss Winter*. Clevedon; *Rev. G. W. Braikenridge*. Hutton. Queen's Wood, Axbridge; *H. S. Thompson*. Ebbor; *Misses Livett and Mayow*. Paul Wood, between Temple Cloud and Clutton; *A. Leipner and D. Fry*. Pilton Wood, near Wells, 1892; *Miss E. D. Clark*. Horrington, *Ravenshaw*; Mells and Newberry Hill, *G. Horner*; in *Fl. Som.* Brass Knocker Wood, 1887; *D. Fry*. In many woods near Bath; *Fl. Bathon*.

The Bird's Nest Orchis is a saprophyte, having no root hairs and so not possessing means for taking in food products directly from the soil. Its nutriment comes through fungus-hyphæ attached to its roots, in the way that some of our forest trees are supported.

### EPIPACTIS *Adans.*

**903. E. latifolia** *All.* *Helleborine latifolia* *Druce.* *Broad-leaved Helleborine.*

Native; in woods; frequent.

July and August.

**G.** St. Vincent's Rocks near Bristol, June, 1799 (as *Serapias latifolia*); *Dawson Turner* and *James Sowerby*. The only record. Woods about Tortworth. Plentiful in Westridge Wood, Wotton-under-Edge; and in the woods near Dursley.

**S.** Leigh Woods, rare; a few plants (often nibbled by rabbits before they can flower) from time to time, as in 1835 by *Dr. H. O. Stephens*; by *Mr. Flower* in 1840; and at intervals since by *Swete*, myself and others. St. Anne's Wood, Brislington, 1840; *T. B. Flower*. Brislington, in a private wood, 1885! *R. Baker*. One plant in Sandy Lane, between Abbotsleigh and the Tan-pits, was known for many years to the *Misses Cundall* and their father, but is now gone; believed to have been dug up for a garden about 1906. Plantation on the west of Failand, 1887; *R. Baker*. Bourton Combe. In woods near Houndstreet and at Stantonbury; *D. Fry*. Lane skirting Lord's Wood above Publow. Grayfield Wood near Hallatrow, 1880! *R. V. Sherring*; and 1908; *Miss Roper*. The Court Hill, Clevedon, 1887; *R. Mason*. Ebbor, 1881; *Miss Mayow*; and in 1885 and 1907! *C. Bucknall*. Winscombe; *D. Fry*. Wood near Farrington Gurney; *Id.* Near Chewton Mendip; *Fl. Som.* Sparingly in the wood at Edford, 1888. On the west side of Crox Bottom, Gurney Slade, fine and typical, 1910. Weston Hill, near the Worle Lodge, 1856; *St. Brody*.



Occasionally south of Wells; *Miss Livett*. Brass Knocker Wood, Bath, in great abundance, 1887; *D. Fry*. In several woods near Bath; *Fl. Bathon*.

**904. *E. media* Bab. non Fries. Narrow-leaved Helleborine.**

Native; in woods; rather rare.

July and August.

**G.** One fine plant (exactly as figured in *Engl. Bot.*) by a woodland track near Hillsley, Aug. 1908. Westridge Wood, near Wotton-under-Edge.

**S.** Houndstreet Woods and Stantonbury; *D. Fry*. Woods between Hallatrow and High Littleton, and towards Clutton. Under fir trees in Crox Bottom, Gurney Slade, two plants in 1909! *Miss Roper* and *R. V. Sherring*. About a dozen there but not all flowering, in 1910! Wood in the upper part of Cheddar Gorge; *G. C. Druce* in *Bot. Ex. Club Report*, 1882. Cheddar, 1887; *R. V. Sherring*. *Ibid.*, two plants "nearly our normal *media*," 1907; *Rev. E. S. Marshall*.

I am doubtful if it be wise to treat this as a species distinct from the preceding, with which it is in very close affinity; so close that the line between the two is by no means easy to draw. The practised eye recognizes the plants I have placed here as certainly not the same as ordinary *latifolia*, yet the characters which separate them can be grasped only with difficulty. *E. media* is the more wiry and slender plant, narrower and more elongated in all its parts, with flowers in a lax raceme and few in number. The flower is more decidedly greenish than that of *E. latifolia*. The basal bosses or "hunches" of the text books are the two tubercles at the base of the terminal portion of the labellum; and when well developed—which they are not always—they should be distinctly rugose in *media* and smooth in *latifolia*. There is undoubtedly something remarkably different in the general appearance or habit of the two plants, and it seems odd that really good distinguishing characters should be lacking.

Syme's statement in *Engl. Bot.* that *latifolia* flowers nearly a month later than *media* does not accord with local experience. In one or two of our localities where the two grow within a few hundred yards of each other, they have both been in good order on the same day. Another excellent botanist (*Druce* in *Fl. Berks*) suggests that *media* is only a form of *latifolia* growing in a drier or more exposed situation. It happens that some of our most strongly marked *media* thrives in ground that is not much better than a swamp; while at a little distance unmistakable *latifolia* stands on higher ground.

The *E. violacea* Boreau (? *E. purpurata* Sm.) of south-eastern England is quite a distinct thing, and ought not to be confounded with any other form of *Epipactis*.

**905. *E. palustris* Crantz. Marsh Helleborine.**

Native; in swamps and damp sand near the sea; rare. July and August.

**S.** Marshy field above West Town, Nempnett; *Dr. Gough*. The Max valley below Winscombe, both in Max Bog and in a swampy meadow outside it; fairly plentiful. Weston-super-Mare; *Herb. Stephens*. This habitat proves to be a sandy field S.W. of the railway station, where the Rev. R. P. Murray and

I found the plant in fruit on Sept. 13, 1901. The Rev. E. S. Marshall saw quite 30 plants at the spot in 1906, and a still larger number was noticed subsequently. Wet hollows among the sand-hills N. of Burnham. Claverton Wood; *Dr. Davis* in *Fl. Bathon.* There has been no confirmation of this last record, and an error may be suspected.

**CEPHALANTHERA** *Rich.*

**906. *C. pallens* Rich.** *C. grandiflora* Bab. *Large White Helleborine.*  
Native; in woods, mainly of beech; rare. June.

**G.** Woods in Tortworth Park; still there in 1908. Eastern border of Gravel-pit Wood, Dursley; *Miss Gingell.* Folly Wood, by Woodmancote, Dursley, 1901! Woods near Uley; *Mr. Baker* in *Withering* (1796). The Misses Cundall inform me that the plant still grows in that neighbourhood in profusion.

**S.** Wick Grove, Brislington; *Dr. Withering* in *Swete, Fl.* Not mentioned in *Withering's Arrangement*, 3rd ed., but there is a specimen in *Herb. Thomas* from Wick House, Brislington, June, 1834. In a wood near Clevedon, unsuspected until 1883, when three or four plants were observed by Mr. Sargent and Mr. E. Wheeler. Mr. D. Fry saw seven or eight in 1884. The locality is a frequented one, and to specify it more exactly would be unwise. I saw the plant in 1887, but do not know if it now exists. Portishead Wood, 1906; *H. E. Matthews.* Limeridge Wood near Tickenham! 1898. In small quantity for many years at the foot of Sandford Hill, Sidecot side; *F. A. Knight.* Top of the wood in Cheddar Gorge, 1886; *R. V. Sherring.* In a beech wood on the top of a hill near Fortnight; *Dr. H. Gibbes* in *Fl. Bathon.* I saw eight or ten plants between Fortnight and Dunkerton in 1882 and 1883. Wood by the locks on the old canal near Combe Hay. Brass Knocker Wood, 1887; *D. Fry.* Claverton Wood and woods at Hinton Abbey; *Sole* in *Bot. Guide* (1805). Edge of Claverton Wood, 1905; *Miss Peck.* Farleigh Hungerford; *Dr. H. F. Parsons.* Monkton Farleigh Wood, 1904. South Stoke; *Rev. L. Jenyns.* Woods near Midford; *Fl. Som.* Wood at Pylle near Shepton Mallet; *Mrs. Barnes.*

Earliest record:—"Helleborine latifolia montana. *Wilde white Hellebore.* Amongst the rocks not farre from Bathe."—*Johnson, Merc. Bot.* p. 42 (1634).

**907. *C. ensifolia* Rich.** *Long-leaved Helleborine.*

Native; on a bushy limestone slope, only once found. May and June.

**G.** "Wooded slope, Durdham Down, 5 June, 1853;" *Herb. Cundall.* The locality was further defined as "Near the Black Rock Valley," in J. H. Cundall's catalogue.

This rare species has not been re-found in Mr. Cundall's habitat. The bushy slopes descending from the Down to the riverside have been so altered in character, since the date given, by the construction of the Port and Pier Railway, extension of quarrying, and some other disturbing operations, that one can hardly expect the orchid to have survived. There is nothing wonderful



in its presence in the Avon valley, for it has been found at Sapperton near Stroud (*Herb. St. Brody*), and grows rather plentifully in a limestone wood beyond Chepstow, as well as on the Gloucestershire bank of the Wye, higher up.

## IRIDACEÆ.

### IRIS *Linn.*

#### 908. *I. Pseud-acorus* L. *Yellow Flag.*

Native; in and by water. Very abundant throughout the alluvial portions of the district. June and July.

The common form about Bristol is the VAR.  $\beta$ . *I. acoriformis* Boreau, with outer perianth segments pale yellow bearing a blotch of deeper tint at the base, the blade suborbicular and the claw with prominent purplish veins.

#### VAR. *Bastardi* Boreau.

With pale lemon-coloured sepals not having any orange spot at the base of the blade.

**S.** Boggy field below Winscombe! 1904; *Miss Roper*.

#### 909. *I. foetidissima* L. *Gladdon. Stinking Iris. Purple Flag.*

Native; in woods and hedges, and occasionally on open ground in full exposure to wind and sun. Frequent, but mostly in small quantity.

May to July.

**G.** Stoke Bishop, sparingly. Druid Stoke; *Herb. Powell*. Close to Over Court; *R. C. Cann Lippincott*. Between Berwick and Compton Greenfield; in a wood at the top of Hollywood Lane, on the west side; and behind the lodge of Over Park; *Spencer G. Perceval*. On Spaniorum Hill above Compton Greenfield. Scattered thickly over a large area in Cleve Wood, Bitton! This, the long Avonside wood opposite Keynsham Hams, east of Hanham Ferry, is the most prolific station for the Iris in the district. Hedgebanks, Ingst and Elberton! Wotton-under-Edge and Dursley; *V. R. Perkins*.

**S.** Hedges near Bishport; *Swete, Fl.* and *Herb. Stephens*. Sparingly in the Rectory Wood and by Tower Court, Wraxall. Woods by Cleeve, Goblin Combe and Wrington. The Fir Wood etc. at Clevedon. Thickets on the coast at St. Thomas' Head, Woodspring! Among bushes on the top of Bleadon Hill; *H. S. Thompson*. Uphill, near the great quarry, 1895. South-west slopes of Brean Down; and here and there among the sand-hills between Brean and Burnham. Abundant on Steep Holm. Easton and Wookey; *Miss Livett*. Frequent in woodland about Hinton Charterhouse and Midford! In many places near Bath; *Fl. Bathon*.

"Hereof the country people of Sommersetshire have good experience, who

use to drink the decoction of this roote . . . wherewith to physicke themselves."—*Gerard*, p. 54 (1597).

Referring to the odour of this *Iris*, which is disagreeable only when the plant is bruised, the strength of the Latin superlative in the specific name seems uncalled for.

[*Sisyrinchium angustifolium* *Mill.*

*Alien.* Stated in *Journ. Bot.* 1906, p. 426, to have been "found growing near the golf ground at Burnham, Somerset, by Mr. C. F. Vincent." The sand-hills between Burnham and Berrow have been long noted for an introduced alien flora.

There was forwarded to me in 1907, by Miss Peck, a specimen from a small clump that had been found on a rocky ledge in a wood near Midford, where it must have been planted.]

## AMARYLLIDACEÆ.

### NARCISSUS *Linn.*

#### 910. *N. biflorus* *Curtis.* *Two-flowered Narcissus.*

Denizen; naturalized in fields and orchards; rather rare. April and May.

**G.** Stoke Bishop, 1838; *Miss Waring* in *Herb. H. Thomas.* *Ibid.*, May, 1839; *Miss Fisher* in *Herb. Powell.* Stapleton; *H. O. Stephens* in *Herb. Brit. Mus.* and *Herb. Watson.* I have no later information concerning these localities.

**S.** Ashton Park; *H. O. Stephens.* Open pasture between Bishport and Dundry Hill, a few plants! Between Flax Bourton and Barrow Curney, in small quantity! "In an old orchard at Pill;" *J. Anderson MSS.* in *New Bot. G. Suppl.* (1837). Confirmed in 1909 by the Misses Cundall, who reported the plant as plentiful and manifestly of long standing in an old orchard on Bridgeman's Farm near Pill. Walton-in-Gordano; *W. E. Green.* Clevedon, 1876; *Mrs. Lainson.* A few plants by the Chew at Pensford; *D. Fry.* Winscombe or Axbridge? *W. B. Waterfall.* Large meadow at Churchill in great quantity. The half acre or so of white flowers is visible at a long distance at the proper time. Plucking is now strictly prohibited. Mr. Thomas Clark, in 1852, (*Phytol.* IV, p. 646) mentioned *N. biflorus* as growing sparingly in another large field adjoining the village church, where I have failed to find it. Hutton; *Dr. Stephens* and *F. A. Knight.* Uphill; *Dr. St. Brody* and *T. F. Perkins* in 1885. In the Friary Wood between Freshford and Hinton Charterhouse, with *N. poeticus*, apparently planted; *D. Fry.* Prof. Babington's autograph in Mr. Newbould's copy of *Fl. Bathon.* stamps the Bath record (Prior Park) as "a mistake."

The *N. biflorus* at Churchill does not grow mixed with the Common Daffodil which is likewise very abundant there, but in a field by itself. It flowers until the middle of May; at the end of the third week it is practically all over, and has entirely disappeared, leaves and all, by the time the mowing grass is ready for cutting. I have noticed that the grass crop does not appear to be in the



least affected by the presence of the *Narcissus*, whose dense masses, a few weeks earlier, had almost obliterated the other herbage. And I see that in another part of the country, where a field is similarly overgrown with *Narcissus*, the succeeding grass crop is stated to be quite as abundant as on any unoccupied land.

[*N. poeticus* L. *Pheasant's Eye Narcissus*.

Alien; derived from gardens; rare.

May.

**G.** Roadside, Compton Lane, May, 1849; and Beck's Pool, Frenchay, 1850 and 1851; *J. H. Cundall*. Meadow on Charfield Hall Farm, for years, until eradicated by visitors. The farmer was glad to be rid of it and the trespassers. Two small patches in a meadow at Woodford, near Stone, 1911!

**S.** "On the south side of Dolebury Camp still grow a few plants, tenants once, no doubt, of the garden of a cottage whose ruins can be traced near by."—*F. A. Knight*. Orchard near Axbridge; *W. B. Waterfall*. In considerable quantity in a fir plantation (preserved) on Mendip above Compton Martin, 1910; *Dr. Gough*. In 1911, six patches of the *Narcissus* were noted in this plantation and were considered to have sprung originally from garden refuse cast out from a neighbouring farm. One patch in Compton Martin Wood; *Miss Roper*. In the Friary Woods between Freshford and Hinton Charterhouse, apparently planted, 1886; *D. Fry*.]

### 911. *N. Pseudo-narcissus* L. *Daffodil*. *Lent-Lily*.

Native; in pastures, copses and open woodland; rather common and often occurring in considerable abundance. March and April.

**G.** Stoke Bishop; Sneyd Park; and Filton Meads; *Swete, Fl.* Not known now in either of those localities. Wood at Henbury; *Herb. Powell*. This wood lies towards Hallen, and the plant is still there. Sparingly in a pasture between Stoke Bishop and Westbury-on-Trym, 1882. This refers to a small patch on Cote Farm, well known to children of the period. I understand that the farmer, annoyed by folk coming to look for the flowers, had the bulbs dug up about 1885. Two clumps in a field on the right bank of the millstream at Frampton Cotterell, near an old coal-pit, 1908; *Miss Cockle*. Abundant in underwood at Yate Rocks. Tortworth Park. In large numbers on a wooded slope near Damery Bridge, towards Stone! *F. Samson*. Here the flowers are strictly preserved for decorating the neighbouring churches; a man being stationed in the season to prevent gathering by unauthorized persons. Monk's Wood, a mile south of Cold Ashton, on oolite above St. Catherine's reservoir; plentiful among the trees and also in open ground below towards the brook that forms the county boundary! This will be, doubtless, the locality described as "Near St. Catherine's" in *Fl. Bathon. Suppl.*

**S.** Leigh Woods! *Rev. C. B. Dunn*. Abundant in a pasture on Failand Farm. A large patch on Racehorse Farm, Failand! Sparingly in a wet valley between Portbury and the upper Clevedon road! Bishopport; *Swete, Fl.* A very few plants in Bourton Combe! On the skirt of a wood and a field border between Naish House and Cadbury Camp! Field adjoining the railway north of Pensford! Lord's Wood, Houndstreet. In two spots in the vicinity of Grabbie Hill and Hounsley, near Chew Stoke; *D. Fry*. Wood, Corner Pool Farm, Redhill. In one field at Littleton near Winford. Pasture at Neilsea. Yatton. In profusion over many acres in meadows close to the village of Churchill. Churchill Batch, in thick underwood above the road! A narrow combe running from Star towards Shipham on Mendip is known as the "Daffodil Valley."

Here the plant grows over a considerable area. Along a stream at Langford. Compton Martin Wood; *Miss Roper*. Rowberrow, Chilcompton and Nettlebridge; *Fl. Som.* Stoke Lane valley, Edford, below Holcombe, in great plenty. Meadow at Prior Park, Bath.

The curious movements of the flower-stalk in *Narcissus* are of importance to fertilization. The bud of the common Daffodil is at first erect; the peduncle then bends over until the flower is almost inverted, and finally rises again to remain at a certain angle until the flower withers. These changes in the direction of the peduncle and the consequent drooping and straightening up of the flowers may be necessary for the protection or development of the pollen and the placing of the entrance to the flower in a position most convenient for particular insects whose visits are profitable to the plant.

[*N. incomparabilis* Mill. Alien. An old garden plant, rarely met with in a semi-wild state.

S. Churchill: April, 1850; *Herb. Lawrence*. With Miss Lawrence's specimen is preserved a letter from Mr. Rabington (June 17, 1850), giving the name and pointing out that the species is not native, and ingeniously suggesting that roots from a farm garden may have been thrown out on to manure in the yard and so scattered in the pasture where the plant was found. I suspect that the *Narcissus* of which Mr. T. Clark saw a small quantity at Churchill in 1852, and which he designates *N. aurantius*? in *Phytol.* iv, p. 646, was really this species, although Clark says the colour of the flower was deeper than that shown in a figure of *N. incomparabilis* he had consulted. Mrs. Lainson seems to have seen it at Churchill in 1881, but I doubt if it be still there, as neither my friends nor I have met with it on our visits to the field described by Mr. Clark. Orchard near Axbridge, 1881; *W. B. Waterfall*.]

[*Leucojum æstivum* L. Summer Snow-flake.

G. Alien. "Grows in some quantity in one place in Almondsbury parish; but as the Snow-drop and large Periwinkle are its near neighbours there may once have been a cottage garden on the spot, though not in the recollection of anyone living."—*Rev. K. A. Deakin*, 1879. Under trees on the margin of Berwick Wood near Henbury, 1895! *Alan P. Gardiner*.

S. Uphill; *T. F. Perkins*. Langford; *Mrs. Gregory*.

This plant could occur with us only as a straggler or relic of cultivation.]

## GALANTHUS Linn.

### 912. *G. nivalis* L. Snowdrop.

Native or Denizen. If not indigenous, it is perfectly naturalized in woods and by streams in many places, but is not often abundant.

February and March.

G. Near Sea Mills; *S. Rootsey* (1828), and *Worsley Cat.* in *New Bot. G.* (1835). Waterside near Combe Dingle, 1850; *Herb. Cundall*. Still there by the Trym below Combe Dingle, quite a short distance from Sea Mills. Stoke Bishop Wood; *Swete, Fl.* Miss Jacques and Mr. A. E. Hudd have gathered some there in recent years. Powder House Wood; *Id.* This wood occupies 200 yards or so of steep rocky riverbank just above the Magazine. It was closely examined in March, 1909, when no sign of the plant could be detected. Field at Druid Stoke, 1909. Plentiful on shady slopes in Henbury Combe, Blaize Castle; known there many years. One large clump by the Boyd above Bitton, towards Wyck, 1909; *F. Samson*. Almondsbury. Alveston. Skirt of the Vineyards Wood, Elberton! *Miss Roper*. Tortworth Park.

S. One clump at Bourton Batch, not far from Butcher's Broom and Daffodils; *Miss Roper*. St. Anne's Wood, Brislington; *T. B. Flower*. Hedge-bank at Whitechurch, 1881; *Rev. W. H. Painter*. Orchard at Barrow Gurney,



and at Hutton; *Dr. H. O. Stephens*. Pasture between Portbury and the upper Clevedon road! On a wood border between Naish House and Cadbury Camp, with Daffodils! Meadow and laneside on the left bank of the Chew below Woollard, abundant! Goblin Combe near Yatton, 1880! *Miss Winter*. A few plants by a brooklet below Winscombe, not far from the ancient ruined mill! *D. Fry*. At the bottom of the lane that skirts the eastern end of Dolebury; *F. A. Knight*. Compton Martin Wood; strictly preserved. East Harptree; *Fl. Som.* On both sides of the stream for about half a mile at Hollow Brook, Bishop Sutton! *F. Samson*. Banks in an old lane at Litton, and on the edge of a deserted cultivation by the hamlet of Sherborne! Along the course of the Chew for a considerable distance on both banks, and in a marshy wood adjoining, between Coley and South Widcombe! *F. Samson*. On the Chew also near Chew Stoke; *D. Fry*. Fields at Uphill, abundant; *Rutter's Hist.* (1829). Still there in 1880; *T. F. Perkins*. Near Wells, as an escape from gardens; *Miss Livett*. Stoke Lane valley near Edford, in far larger quantity than I at first reported. There is at least an acre of the plant in some swampy woodland, and it occurs also sparingly on the Downside Common bank of the stream. It is apparent that the village gardens of the neighbourhood are unusually well provided with Snowdrops, and I learn that at one time cottagers and others were at liberty to carry off the bulbs in any quantity. Now, however, some protection is being afforded by the landowner. On one visit I tracked this charming flower about a mile up stream, and a keeper told me that it extended almost continuously lower down through Mells Park to Dead Woman's Bottom and Murdercombe, near Great Elm, in all about ten miles. In the last mentioned gruesome but picturesque localities Mr. D. Fry and I have seen it flowering profusely.

One has often to be guided solely by leaves in tracing the extent of this plant's occurrence, as the village children seldom leave many flowers ungathered in the more accessible habitats. An instructive example in this connection is afforded by the Goblin Combe locality. Here Snowdrops have been known for many years on the woodland slope above a long-ruined building a short distance from Cleeve Toot; but, for the reason given, they rarely caught the eye of passers-by. Since 1909 all wandering through the woods or on the Toot has been stopped by flanking the bridle-path up the Combe with barbed-wire fences. The Snowdrops, profiting by this protection, became conspicuous; and may continue to thrive and spread, so that within a few years, if the fencing be maintained, the locality should become an important one.

Although the Snowdrop does sometimes appear to be thoroughly wild—and good judges class it as clearly indigenous in the Edford-Mells district,—many authors doubt if it be truly native to this country and believe that it was introduced from Italy about the time of Queen Elizabeth. The name does not occur in any writing, either prose or poetry, before the middle of the 17th century. Neither Shakspeare, Bacon, Herrick, Wotton nor Isaac Walton alludes to the Snowdrop. The earliest notice of this plant seems to be by the Hon. Robert Boyle about 1665. On the other hand it may be doubted if many of our poetical writers, whether earlier or later, had much botanical knowledge

that could be trusted. The subject is interesting inasmuch as so few of our poets have been men of science. Crabbe, alone, seems to have had a real love and a good knowledge of botany. The Rev. E. S. Marshall writes to me :— " Personally, I feel no doubt that the Snowdrop is an indigenous British species, and I suspect that it was cultivated long before Elizabeth's day. But how difficult must rural gardening have been in the feudal period ! I do not think it easy to build a destructive conclusion on the silence of our early poets. Were any of them West-countrymen ? For it is only in the West that the Snowdrop has the appearance of being truly wild." A rather good point, I think.

## ALISMACEÆ.

ALISMA *Linn.*913. *A. Plantago* L. *Common Water-Plantain.*

Native ; in ditches and ponds. Common and generally distributed.

July and August.

VAR. *lanceolatum* With.

**G.** Margin of stream under Ashley Down, Bristol, 1879 ; *W. B. Waterfall*. Baptist Mills, 1884 ; *E. Wheeler*. These localities are probably identical.

**S.** Small pool among the Berrow sand-hills, 1906 ; *Rev. E. S. Marshall*.

914. *A. ranunculoides* L. *Lesser Water-Plantain.*

Native ; in peaty ditches and pools ; local.

June and July.

**G.** Abundant about the Leechpool, some two miles north of Yate ! *Miss Roper* and *F. Samson*. A great rarity in this county.

**S.** On the peat of the Walton Valley. Here and there in ditches of the great alluvial tract between the Mendips and the Channel, from Tickenham and Nailsea Moors as far as the district extends to the south-west. As a characteristic aquatic species of the peat moors it is especially plentiful in the rhines and hollows left by the turf-cutters of Cateott, Burtle, etc.

The flowers are normally pale purple, but we frequently find them white with a yellow eye.

VAR. *repens* *Davies*.

This is confined with us, so far as is known, to peaty waters of the moor between Shapwick and Ashcot Stations on the Somerset and Dorset line. First recorded by Dr. C. E. Moss in *Geogr. Distrib. of Veg. in Somerset*.

SAGITTARIA *Linn.*915. *S. sagittifolia* L. *Arrowhead.*

Native ; in ditches and rivers ; frequent in the waterways and marshlands.

July and August.



**G.** Formerly at Baptist Mills and in Shirehampton marshes; *Swete, Fl.* In the river Frome near Stapleton, 1851; *Herb. Cundall*; and is still there in some quantity. In the Avon at Crew's Hole, Conham, Hanham and Bitton. Lowlands under North Nibley and Wotton; *V. R. Perkins*.

**S.** In the Avon near Saltford and at Newton Bridges. Peat ditches of the Walton, Clapton and Weston-in-Gordano Moors. Nailsea Moor. Tickenham. Yatton. Marsh ditches of the Cheddar Valley, extending south to Wedmore, Brent Knoll, the river Brue and the peat moors. Old coal canal at Radford and near Midford. Common in the river and canal; *Fl. Bathon*.

Conspicuous amid our shallow-water vegetation from its graceful and unique appearance. There is not a more interesting fact of the kind in Nature than this perfect reproduction of an arrowhead.

A very pretty narrow-leaved form, found near Nyeland, S. in 1907; and collected also by St. Brody in the Berkeley Canal, 1864, is probably the *VAR. parvifolia* Sibth. But this may be only a transient state, unworthy of distinction by name.

### BUTOMUS *Linn.*

#### 916. *B. umbellatus* L. *Flowering Rush.*

Native; in ditches and rivers. Rare to the north of Bristol, but quite frequent in the southern lowlands. June and July.

**G.** Near Stapleton, in the Frome; *Stephens Cat.* (1835). *Ibid.*, 1851; *Herb. Cundall*. It still survives (1908) at Eastville, in a pond—old river-bed—formed on diverting the course of the Frome by flood works. In the Frome under Winterbourne Down, and by Cog Mill between Winterbourne and Iron Acton. Several plants in an ancient quarry-pit between Cog Mill and Latteridge, 1908. In the Avon at Crew's Hole; *T. B. Flower* in *Swete, Fl.* I saw it a little above Crew's Hole, not long ago. Near Wotton-under-Edge, towards Kingswood; *V. R. Perkins*. In the Little Avon by Charfield Mills.

**S.** Formerly in Bedminster Meads; *Swete, Fl.* Pond by Ham Green; *Miss Roper*. Near the outflow of Markham Bottom, near Pill; *Misses Cundall*. Nailsea and Tickenham Moors, becoming scarce. Kenn Moor near Yatton, and ditches towards Congresbury Station. Kingston Seymour. Between the abandoned Weston Junction Station and Weston-super-Mare. Brean, 1880; and in many spots between Berrow and Brent Knoll. Pools and ditches throughout the Cheddar Valley. Frequent in the river Brue between Westhay and Highbridge, and in rhines of the peat moors. In the Camerton and Midford Canal. By Kelston weir on the Avon. Frequent in the Avon; *Fl. Bathon*. The river at Bath would not have been quite so foul in 1834.

### TRIGLOCHIN *Linn.*

#### 917. *T. maritimum* L. *Sea Arrow-grass.*

Native; abundant on the muddy banks of the estuaries and in salt-marshes by the Channel; marking the tidal limit in both counties. July to September.

**918. *T. palustre* L.** *Marsh Arrow-grass.*

Native; in marshes, boggy meadows, and on ditchbanks; frequent.

June to September.

**G.** Meadow below Cook's Folly; *Dr. H. O. Stephens*. The Boiling Well; *Swete, Fl.* Hallen bog near Henbury, 1838; *Herb. Powell*. Still rather plentiful in those wet meadows. Swampy portions of Siston Common. By the Boyd near Bitton. Abson. Olveston. Near Lyde Green. Littleton-on-Severn. Berkeley.

**S.** Bedminster Meads; *Swete, Fl.* Marsh by the Chew above Pensford. In one damp field near Failand Hill House; *D. Williams*. Plentiful there in 1911! Nailsea Moor. Yatton. Moor at Walton-in-Gordano near Clevedon; *D. Fry*. Meadows in the Lox Yeo valley under Crook's Peak. Uphill; *St. Brody*. Moors around Wedmore. Brean. Berrow. Burnham. Easton Moor; *Misses Livett and Mayow*. Glastonbury Moor; *Fl. Som.* Frequent on the banks of the canal and river; *Fl. Bathon*.

## ASPARAGACEÆ.

### ASPARAGUS Linn.

**919. *A. officinalis* L.** *Asparagus.*

Native or Denizen; in salt marshes and damp sandy soil near tidal waters; rare. If not indigenous, it must indeed be thoroughly naturalized in the vicinity of Bristol, having a practically continuous record of nearly three hundred years.

June to August.

**G.** "*Asparagus vulgaris, Sparagus.* In the Marshes beyond Bristow."—*Johnson, Merc. Bot.* p. 21 (1634).

"*Asparagus marinus crassiore folio.* . . . It is thought that it is this kinde that groweth in *Apleton* meadow in *Glostershire*, which is about two miles from *Bristow*, from whence the poore people doe gather the buddes or young shootes and sell them in the markets of *Bristow*, much cheaper than our garden kinde is sold at *London*."—*Parkinson, Theatr. Bot.* p. 455 (1640).

"Below Look's Folly, two miles from Bristol; *Mr. Newton*."—*Ray, Syn.* (1690). The mis-spelling "Look's" instead of "Cook's" is perpetuated by both Hudson and Withering.

At p. 290 of *Camden's Britannia*, Gibson's edition, (1695), containing plant lists furnished by Ray, I find the following:—" *Asparagus palustris* Ger. Sperage or Marsh-Asparagus, corruptly called Sparrow-grass. [Here follows the quotation from Parkinson, given above.] This should seem rather to be the common or manured Asparagus growing wild, than the maritime, which differs from it though growing in the same place, in having thicker leaves and a better taste. *Magnol*."

Meadow below Cook's Folly; *Shiercliff's Guide* (1789). In the salt-marshes



below Kingsweston near Bristol; *Withering, Arr.* (1796); and *Dr. H. O. Stephens*, about 1835. Marsh near Thornbury; *Bot. Guide* (1805). Sea Mills; *Worsley Cat. in New Bot. G.*; prior to 1835. Bank of Avon between Sea Mills and Lamplighters; *Swete, Fl.* (1854). I have on four occasions—in 1879, 1880, 1899 and 1910—met with a small quantity on the alluvial bank of Avon near Sea Mills.

**S.** "June 4, 1767. This day Walkd on the Rocks over the Ferry: found . . . . *Asparagus officinalis*. It grew in a salt marsh under a wood very near opposite to Jackson's Tower,\* just where the Wood closes down to the River, and the Path turns up into the Wood."—*Journal of Sir Jos. Banks*. Leigh side of river opposite Cook's Folly; *T. B. Flower in Swete, Fl.* I have several times found a few stems at a turfy spot by the riverside under Leigh Wood, as indicated by Banks. In May, 1893, there was a small quantity high up on limestone in the interior of the wood, at some distance from the Avon; and some also in another spot 200 yards from the first. Mr. Cundall, too, appears to have found it in the wood "Near Miles' Pond, 19 June, 1851." Portishead; five or six stems on a bank near the Station, 1910; *Misses Cundall*. Sparingly on moist sand at Weston-super-Mare, 1909; *Miss Roper*. Uphill; *T. F. Perkins*. Dune marsh north of Berrow Church, 1880. Sandbanks at Steart and Burnham, from three to five feet high when in blossom. (Mr. Clark.) *J. C. Collins MS. in New Bot. G. Suppl.* Burnham sand-tolls, 1836; *Herb. Clark*. A small patch on Steart Island! 1885. It still continues on the sands near Burnham, if not so plentiful yet quite as luxuriant, as is stated in the old record. Although much of the ground has been enclosed and otherwise interfered with of late years, the plant was seen in some quantity in 1910. Two stems in the footway near the top of North Road, Bath, 1910! *Miss Roper*.

The whole of our plants belong to *VAR. altilis*—identical with the cultivated form of *Asparagus*; and it might be generally supposed, therefore, that the Bristol localities are occupied by garden escapes, introduced by accident. While in some instances this has obviously happened, the recorded continuance of the species during nearly three centuries in at least two sub-maritime positions which in ancient times must have been far removed from any cultivation; and which, even at the present day, would not suggest probable introduction, makes one hesitate to class it with aliens or denizens. For example, until quite recent times the line of sand dunes that connects Berrow with Burnham must have been wildly isolated, standing as a barrier between the sea and a wide breadth of ill-drained salt marsh that stretched away behind. And the flats of Avonmouth and Shirehampton were doubtless in a like condition with respect to cultivation.

There is no character by which *altilis* can be separated from the other form of the species, save its erect, long-branched habit of growth; *maritimus* having a shorter, stouter and decumbent stem or frond. It has been argued, with some reason, that the latter habit has been evolved through long-continued exposure to wind and spray on the sea coasts where *maritimus* is only found, just in the

\* Mr. Spencer G. Perceval explains in his Notes upon the *Journal* that the Sneyd Park Estate was long owned by the Jackson family after Mr. Cook left Bristol.

same way that prostrate varieties of Broom and Willow have been produced under stress of a similar environment; and that when the plant's habitat has been a sheltered one, screened from the force of sea breezes among stout herbage or in hollows of the sand-hills, the growth would naturally become more or less erect; the difference between the two varieties being in fact merely a matter of situation. Lloyd (*Fl. de l'Ouest de la France*, ed. iv, p. 350,) found that seedlings of the maritime plant, when raised far from the sea, preserved the decumbent character. Still, a permanent change in stem direction could not be expected to result from the action of a favouring influence through one or two generations. It would doubtless need the exertion of that influence during a long period to effect such a variation.

Among our older local records the most interesting, I think, is that of Parkinson. Messrs. Britten and Holland, in their *Dictionary of English Plant-Names*, take this, third-hand, from Gibson's Camden, and place it under the head of *Ornithogalum pyrenaicum*; but I very much doubt if the authors were correct in assuming that Parkinson's "buddes or shootes" were of this plant rather than of the true *Asparagus* or possibly of Hop; although of course we know that the budding scapes of *O. pyrenaicum* are sold and eaten in a neighbouring city. There should be little uncertainty on this particular point. Parkinson does not hint at any doubt: he may indeed have had personal knowledge of the circumstances. The *Ornithogalum* is not a plant of meadows or salt-marshes. It does not grow on the Gloucestershire side of Bristol nearer than Cleve Wood in the parish of Bitton, and the only place name we have at all like "Apleton" lies in quite another direction. There is an Ableton Lane running northward from Hallen to Redwick through a tract of lowland which, three centuries ago, must have been mainly a huge swamp subject to inundation from the sea, and is marked on contemporary maps as "The Great Salt-Marshe." Taking Parkinson's statement in connection with the records for Thornbury and Kingsweston, it seems probable that the meadow spoken of lay in that direction, though certainly the distance from Bristol would have been a good deal more than two miles.

Some light has been thrown upon this dubious question by investigations kindly undertaken by my friend Mr. F. Samson. He made inquiry among farms and cottages on the site of the ancient salt-marsh through which Ableton Lane now runs. Nothing was known by the residents of any occurrence of true wild *Asparagus*. But an intelligent person, who had evidently acquired a fair knowledge of wild flowers and had lived in the district many years, pointed out that young shoots of the native Hop—abundant on the flats—when they first push through the soil in Spring have a resemblance to those of *Asparagus*; and that locally the hop shoots had been called "asparagus" so long as she could remember. I find it stated on good authority that these young tops are gathered, tied in bundles and sold as an agreeable vegetable, in other parts of the country; but that, unlike "Bath Asparagus," the flavour of this substitute is decidedly distinctive. It seems possible that we have here an explanation of the reputed abundance of *Asparagus* at a former period in "Apleton meadow."



**CONVALLARIA** Linn.**920. C. majalis** L. *Lily of the Valley*.\*

Native; in rocky woods; rare. With us the plant flowers very sparingly. It grows on wooded slopes, often with a north-eastern aspect, where the soil is little more than stones compacted with a little loam, from which the roots cannot be disengaged without much labour. May.

**G.** South side of Bishop's Hill Wood, Wickwar; *F. Samson*. Steep, stony slope in Westridge Wood near Wotton-under-Edge, in plenty over a large space. Cockshoot Wood near Dursley; *Miss Gingell*.

**S.** A patch of an acre or more in Leigh Woods, opposite the Sea Walls; now being destroyed by quarrying, though a disposition is shown to preserve a small portion of the ground that overlooks the Avon. In several parts of the range of woodland between Cleve and Wrington (King's Wood, Yatton; etc.) commencing near the top of the Rhodyate Hill and continuing westward as far as the Woodlands, Congresbury, where Col. Long has shown it to me in abundance on a limestone slope in his woods. Churchill Batch; *Theo. Compton* and *W. B. Waterfall*. Lyncombe Hill near Churchill; *F. A. Knight*. Sandford Wood, 1849; *Herb. Laurence* and *H. S. Thompson* in *Fl. Som.* Asham Woods, facing north-west; *Miss Livett* and *Rev. R. P. Murray*. Wood near Bath; *Fl. Bathon. Suppl.*

This delightful flower seems to have been little known in England prior to the 16th century. W. Turner (1548) had never seen it "savyng in my Lorde's gardine."

A pink-flowered Lily of the Valley is stated to have been found apparently wild in Somersetshire. Such a plant was known in cultivation centuries ago. See *Gerard em.* p. 410.

**POLYGONATUM** Mill.**921. P. officinale** All. *Convallaria Polygonatum* L. *Angular-stemmed Solomon's Seal*.

Native; in rocky woods on limestone and oolite; very rare. Often associated with the Lily of the Valley. It fruits but seldom. May and June.

**G.** Woods above Wotton-under-Edge, in several places. In the Hermitage Wood, Dursley! where the plant has spread much, and now grows more thickly than in former years; *Miss Gingell*.

**S.** Leigh Woods; in company with, and in the same bad plight as, the Lily of the Valley. But by no means extinct, as was feared many years ago by Dr. Syme in *Engl. Bot.* ed. 3. At least two large patches are known to me in the interior of the wood at some little distance from Lily Point; and that which the quarrymen have left of the latter spot continues to be an excellent locality for the plant. Cheddar Cliffs; *W. Christy* in *New Bot. G.* (1835). Still there in two places; one near the pine wood, and the other at the top of a cliff in a combe on the north side of the Gorge. "Woods on the N. side of the Mendip Hills: woods at East Harptree under Mendip;" *Sole* in *Collinson's Hist.* (1791).

The plant of this district, and more especially that in the Leigh Woods, is of weaker habit and has a much less angular stem than the type, of which I have excellent examples from Corsica and from the Superga Hill, Turin, at 2000 ft. This difference, which is very noticeable, led Mr. Flower to forward roots to Dr. Syme for cultivation; and it is stated in *Engl. Bot.* that plants thus obtained were indistinguishable from those of Boreau's *P. intermedium* received from France. However that may have been, Boreau (*Fl. du Centre de la Fr.* p. 615) describes his plant as "à peine anguleuse au sommet," and with "sa tige cylindrique." Our stems are certainly not cylindrical, although not strongly angular. In other respects Boreau's characters do not at all fit Bristol specimens, which are not taller and stouter than type but the reverse, and have not the more numerous flowers ascribed to *intermedium*. Syme suspected that these differences were of little moment; and as regards British variations of the species I think we should take that view.

**922. *P. multiflorum* All.** *Common Solomon's Seal.*

Native; in woods on limestone; very local.

June.

**G.** Wood at Dursley; *Bot. G.* (1805). No confirmation of this record has reached me. There is of course a possibility that it referred to the last species, large specimens of which sometimes bear sufficient resemblance to *P. multiflorum* to cause them to be mistaken for it.

**S.** Leigh Woods, with Lily of the Valley; *Swete, Fl.* Leigh Wood, 1842; *Herb. R. W. Giles*. Mr. Flower informed me that, together with Prof. Babington, he had observed this species growing with the preceding on Lily Point, opposite the Black Rock, and that he expected the locality had been destroyed on making the railway. That is likely enough to have happened, as a good deal of the lower rocky slope was cut away in constructing the Portishead line—1864 to 1867—and since that time nothing has been heard of the plant in Leigh Woods. Known for many years in several spots among roadside herbage on both sides of the way near Longwood House, Failand. Charlton Woods, Portbury, not far from the House, but perfectly wild, 1883; *Misses Cundall*. Still there, 1910. Paul Wood, near Temple Cloud, to 3 ft. 9 in. high in June, 1885; *D. Fry*. Still there in 1910; *Miss Roper*. Harptree Combe; *Rutter's Hist.* (1829). East Harptree; *Fl. Som.* Wood near Leigh-on-Mendip. Stoke Lane valley, Edford; *Miss Livett*. Plentiful in Murdercombe, between Mells and Great Elm. Abundant in woods from Binegar to Asham, Gurney Slade and Croscombe. Dinder; Bishop's Wood and other woods near Wells; *Miss Livett*. Warleigh Woods and Prior Park; *Fl. Bathon*. I have seen it in the woodland at Prior Park. Wood on Charny Down, 1854; *Rev. L. Blomefield*.

First local record:—"In Somersetshire upon the north side of a place called Mendip, in the parish of Shepton Mallet."—*Gerard*, p. 758, (1597).

Ray has (*Syn.* ed. 3, p. 263)—"*Polygonatum Hellebori albi folio, caule purpurascente. Solomon's Seal with white Hellebore Leaves, and a purplish stalk.* In the woods on the North Side of Mendip Hills; *Mr. Bobart*."

It will be seen that the local distribution of this elegant and conspicuous



species is very peculiar. A person acquainted only with the woods of north-east Somerset might conclude that Solomon's Seal was quite a common sylvestral plant; whereas, if the two isolated outliers—a third has disappeared—be excepted, it is practically absent from the whole remaining area of the district. I cannot believe that it exists in our large section of West Gloucestershire, and it is very rare in other parts of the county. In Herefordshire it is present only as an introduction; and from S. Wales it seems to be entirely absent.

### RUSCUS Linn.

#### 923. *R. aculeatus* L. *Butcher's Broom.*

Possibly native in a very few spots, but a planted alien in most instances. Rather rare. March and April.

**G.** Several bushes in Cleve Wood, Bitton, (the long Avonside wood east of Hanham Ferry). The bushes are some distance apart, associated with a few laurels and box-trees; otherwise the vegetation of the wood is purely indigenous and the wood itself appears to be aboriginal. Three or four large bushes in the western portion of an old wood above the Frome near Iron Acton, among Spurge-laurel, Oak and Hazel, and far from cultivation: the least suspicious locality known to me in the district. Hedge near a cottage in Over Lane: no doubt planted. The Rectory Park, Frampton Cotterell; *Miss Cockle*.

**S.** A very large clump half encircles a big tree at the side of a pasture near the bottom of Belmont Hill towards Bourton Batch. There is no garden near the spot, but a mound of ruined walls on which Periwinkle grows marks the site of some old-time dwelling. Roadside hedge near Churchill: certainly planted. Hedge beside the fountain, Sidcot; no doubt planted; *W. F. Miller*. Hedge on Mendip above Axbridge, 1883; *Rev. E. S. Marshall*. Hedgerows in Compton Martin and Butcombe; *Dr. Gough*. Hedge on the hill above Burrington Church, possibly native: and Grig's Pit, near the Priory at Chewton Mendip, in small quantity; *Fl. Som.* Walton-in-Gordano; probably introduced. Dulcote Hill, Wells; *Rev. T. Ravenshaw* in *Phytol. N.S.* (1857).

A shrub which has reached its northern limit in this country, and only just manages to hold its own. It fruits very sparingly save in exceptionally warm and dry seasons.

There is no evidence for a narrow-leaved variety of *Ruscus* such as has been described as *β laxus*. The cladodia (false leaves) of the staminate plant are much narrower than those of the female.

### LILIACEÆ.

#### TULIPA Linn.

#### 924. *T. sylvestris* L. *Wild Tulip.*

Denizen; in some old alluvial fields; very local.

April and May.

**G.** Bitton Meadows, opposite the Church; *Rev. H. J. Ellacombe* in *Withering*, Arr. ed. vii. The plant there is said to have been an escape from Mr. Ellacombe's garden, and it soon disappeared, as is explained by Mr. Flower in *Phytol.* III, p. 854 (1850). Reported in 1907, on apparently good authority, as growing on a farm near Tortworth. Along fifty feet or so of a bank bounding an arable field near Little Bristol, Charfield; flowering freely, 1911!

**S.** Hinton Blewett, Apr. 1853; *Miss Hooper* in *Herb. Lawrence*. Inquiry has been made in the village, but nothing can now be learnt of the Tulip in that neighbourhood. Abundant in several pastures (stiff clay on oolite) adjoining the old coal canal between Combe Hay and Dunkerton. The plant is scattered thickly through two large enclosures and extends into a third, occupying a space of about 40 acres on my computation. Thirty years ago this land was arable, and persons who knew the Tulip at that time have stated that it then flowered much more freely than it has done since. About 1885 the fields were laid down to grass and are still poor pasture for grazing. The Tulip flowers are very scarce. So far as I can learn, only two or three are produced yearly among many hundreds of plants. In May, 1910, Mr. Bucknall and I could detect no sign of any having blossomed. The whole of this land is far removed from any flower-garden, and it seems to me that the Tulip must have flourished there long before enclosures or construction of the canal. In view of its great abundance over so large an area it is certainly remarkable that we find no record of the plant having been noticed earlier than the second half of the last century. But the ground is at a long distance from Bath; there is no public path through it; and the low-lying glaucous foliage withers at quite an early period of the year.

A letter written by the Rev. R. P. Murray in 1885 makes it clear that the Englishcombe locality of *Fl. Som.* is in reality the same as that near Combe Hay just described. I am not aware that Mr. Murray himself visited the place.

The Wild Tulip increases by throwing out from its root a long stout fibre or stolon, at the extremity of which a bulb is formed. Thus a new individual arises at some distance from the parent. This mode of increase, Dr. Syme says, is not known to occur in any other species of the genus; and it is worth noting, as he has pointed out, that MM. Grenier et Godron in the *Flore de France*, tome 3, pp. 177, 178, have transposed this character in their descriptions of *T. sylvestris* and *T. Celsiana*.

The trait of sparse flowering characterizes *T. sylvestris* in other countries. Fries tells us that although it often covers the ground in Swedish cornfields, it rarely flowers and soon withers away. Gremli, in his *Fl. der Schweiz* (English version), is made to say that in vineyards, etc. "it grows in batches, but not very flourishing;" a lame translation, meant doubtless to convey the same fact.

## FRITILLARIA *Linn.*

**925. F. Meleagris L.** *Fritillary. Snake's-head.*

Native; in meadows; very rare.

May.



**G.** In meadows at Bitton, but seldom flowering; *T. B. Flower* in *Phytol.* I, p. 70 (1841). Bitton meadows, June, 1863; *Herb. St. Brody*. Stated in 1866 by Canon Ellacombe to be then extinct at Bitton; *Jenyns' Lecture*. Frenchay, in a private policy, 1904. "*F. Meleagris* has been gathered in flower two or three different times in a field of Mr. Maule's at Stoke Gifford."—*S. Freeman* in *Phytol.* I (1841). "In a meadow below Winterbourne Church, since ploughed; May 1859."—*Note* in Dr. Stephens' copy of *Withering*. In a meadow at Chipping Sodbury, 1901; *Miss Neale*. In "The Riding" by Chipping Sodbury! 1909; *C. Bucknall*. Field in the parish of Stone, 1910! *Kate Elliot*. I have been conducted to the field, which lies at some distance from the village of Stone.

**S.** In two fields west of Barrow Gurney; rather plentiful in a portion of one, and sparingly in the other. This locality, which was brought to my notice in 1891 by Mrs. Alfred Brittan and Prof. Leipner, has become known to many, and the flowers are freely gathered. Still, the plants hold on well and seem none the worse for the periodical loss of their darkly mottled bells. As is usual, a few white flowers hang their heads among those of rosy purple. The total number at this station is at most between fifty and sixty.

Formerly abundant in a field or fields close to the village of Compton Martin, where it is said to have grown "for ages," and was recorded by Rutter in 1829 and by Collins in 1836. Subsequently a former proprietor of the land, annoyed by "people coming from miles and miles around to gather the flowers" (as was related by a very old inhabitant of the place), did his best to have the plant grubbed up, with the result that for a while it appeared to have been extirpated and could not be found by my friends or myself in the early eighties. In 1884, however, Mr. Lovell, a surgeon of Compton Martin, forwarded specimens to Mr. T. B. Flower, and in 1887 Messrs. Fry and Sherring found twenty-one in flower, of which fourteen were white, and seven red.

Reported also from meadows in Litton parish. This has been closely inquired about on the spot, but intelligent villagers know nothing of the flower.

"The chequered Tulip or Lily, *F. Meleagris*, grows near Wells":—*Theo. Compton, A Mendip Valley*; p. 194.

In a field at Norton St. Philip, on our eastern border, seldom flowering; *T. B. Flower*. Said to have grown there abundantly at one time, but to have been dug up to the point of extinction; *Dr. H. F. Parsons*.

On being gathered the flowers very quickly lose their lustre and transparency, and so are much more attractive when growing in the field. One or two of our records give the impression that the Fritillary is an uncertain flowerer. I do not think it is really so, but rather fancy the observer must have got that idea on arriving a little late in the field, after earlier visitors had removed a good deal of the spoil. The pure white flowers that are dotted about among the purple Snake's-heads are mere albinos, and not a distinct variety as might be inferred from the name *F. præcox* given by nurserymen to the white-flowered plant.

## LILIUM Linn.

926. *L. Martagon* L. *Turk's-cap Lily.*

Denizen; with the appearance of a native plant at some of its stations. In woods and pastures; rare. June and July.

**G.** Wood on Henbury Hill! *Misses Cundall.* First reported from Henbury in 1901 by school boys resident in the vicinity, who brought the flowers from a patch in the wild wood where one cannot understand that it could have been introduced. I saw the clump in several succeeding years, but in 1906 it was probably dug up and carried off, as it then disappeared. One plant in the wood at Sea Mills, 1902; *C. Bucknall.* In a large coarse pasture adjoining the hamlet of Hillsley on the west side, occurring in unusual quantity. When first seen by Mr. Bucknall early in 1910 he considered there were quite 200 plants, disposed in several patches and covering a considerable area. A few weeks later, when we went together to get it in flower, nearly the whole had been mown or spudded; only a few stems remained on the brink of a sunken lane that bounds the pasture on the west. This destruction of the maturing plant may be a regular practice at the spot, prompted by a fear of its being detrimental to cattle. We could see no vestige of garden cultivation, nor did any suspicious plants accompany the Lily. It was suffered to flower rather liberally in 1911.

**S.** Three or four plants at the edge of a wood above the brook near Bishops-worth! 1888, etc. *J. L. Hopkins.* Woodland in Prior Park near Bath! Here there are a good many plants in company with Solomon's Seal and native vegetation, but on made ground. Possibly the remains of cultivation, but now completely naturalized.

I am inclined to accept the high probability of this fine species being indigenous in some at least of its localities. It is well known in other parts of the two counties—Tidenham Chase, the Forest of Dean, etc.—and is likely to be even more frequent than at present appears; for it grows usually in old woods amongst a thick undergrowth which might easily conceal it, even when in flower, from the casual passer-by.

[*Asphodelus fistulosus* L. Alien; with a wide area of distribution in the Mediterranean region. It has lately been noticed in a few waste-ground localities in England.

**G.** St. Philip's, Bristol; two plants in 1904.

**S.** Waste ground, Charlcombe, Bath, 1908; *Mrs. Dent Young.*]

## ORNITHOGALUM Linn.

927. *O. umbellatum* L. *Common Star of Bethlehem.*

Denizen; in meadows, withy-beds and the outskirts of old gardens; rare. May.

**G.** Stoke Bishop Wood, 1902; *Miss Jacques.*

**S.** Bishport; *G. H. K. Thwaites in Swete, Fl.* A few plants on the edge of a field at Lower Failand, now gone; *Miss Agnes Fry.* In a field of green fodder at Wraxall, 1906; *Miss Peck.* Abundant in Saltford withy-bed (the side nearest the river)! 1892; *D. Fry.* Here the plant flowered repeatedly until



1908, when another boat-house was erected on the spot, and the locality in great part destroyed. Along a slope parallel with the railway near Kelston Station, and extending about 100 yards; *Misses Cundall*. Walton-in-Gordano; noticed by several observers from 1879 to 1885: the place was probably the site of an old garden. Max Mills; and Langford, 1893; *Mrs. Gregory*. Meadows at Uphill, behind the old church, 1856; *Dr. St. Brody*. Uphill, 1860; *Herb. Flower*. Ditchbank at Burnham, not near a house, 1879; *Miss Winter*. A few plants at both Burnham and Berrow, 1888; *D. Fry*. In a wood at Whatley; *Rev. S. Laing*. Mells; *G. Horner* in *Fl. Som.* In a field near the caisson at Combe Hay; *Dr. Davis* in *Fl. Bathon.* (1834). Near the Locks at Combe Hay, 1870; *Herb. Flower*. Brass Knocker Woods, 1846; *Herb. Flower*. South Stoke, 1851; *Herb. Jenyns*. Quarry on Widcombe Hill, Bath; *Mrs. Dent Young*.

Earliest local record:—"Ornithogalum vulgare . . . umbellatum. *Common Star of Bethlehem*. . . On the top of a hill, three miles on this side Bristol."—*Merret, Pinax* (1667).

**928. O. pyrenaicum L.** *Tall or Spiked Star of Bethlehem.*

Native; in open woodland, upland grass-fields, and on bushy banks; generally, but not invariably, on oolite. Very local and usually abundant wherever it occurs. One of the peculiar features of the Bristol flora on account of its restriction to the eastern side of the district. June.

**G.** Cleve Wood, Bitton, in profusion. This may well be the "Hanham" locality of Mr. T. B. Flower. But the plant is not now known at Conham, as was recorded by Dr. Stephens in Swete's *Fl. Brist.*

**S.** St. Anne's Wood, Brislington; *Swete, Fl.* In a large open pasture belonging to Dr. Fox at Brislington; *D. Fry*. Plentiful on a bushy slope near the Somerset bank of the Avon just above Hanham Ferry: probably in Brislington parish. Stockwood; and in the lane leading thence to Keynsham, nearly as far as the latter place! Hedgebanks at Chewton Keynsham! Banks, hedgerows and open pasture on every side of Queen Charlton! Lane leading from Ursleigh Hill to Publow! *D. Fry*. High ground between Ursleigh Hill and Compton Dando! Most of the above-mentioned stations touch upon the east a line drawn due south from Bristol; a line that marks the western limit of the species in this country. Laneside and bushy field north of Compton Dando. Wood below Kelston; and green lane behind the village towards Lansdown! In mowing grass under Duncorn Hill! Plentiful on Redpost Hill and elsewhere near Dunkerton. Frequent in woods about Bath, especially on the Kingsdown side. Plentiful both in woodland and pasture between Midford and Hinton Charterhouse. Thence it continues in diminishing quantity along the eastern border of the county until it reaches a southern limit near Frome. Dr. Parsons stated that the most southern station known to him was Staplemead near Oldford; but the Rev. S. Laing has it at Nunney, four miles farther south.

Earliest local records:—"Spiked Star of Bethlehem with a greenish flower. Tho. Willisellus observavit in colle quodam tribus cis Bristoliam milliaribus via

qua inde Bathoniam itur.”—*Ray, Syn.* ed. 3, (1724). “In the Road going from Bath to Bristol about  $\frac{1}{2}$  mile beyond Caynsham upon a Bank on a little rising Hill on the right Hand of the Road, found the *O. pyrenaicum*.”—*Lightfoot*, 25 June, 1773. In 1905 Mr. F. Beames noticed it by the fourth milestone from Bristol; a spot corresponding with Lightfoot’s description.

First British record:—“*Ornithogalum angustifolium majus floribus ex albo virescentibus*, Bauhin. . . . It growes in the way betweene Bath and Bradford not farre from Little Ashley.”—*Johnson, Merc. Bot.* p. 55 (1634).

Away from the Bath and Corsham oolite to the eastward *O. pyrenaicum* has a scanty and scattered distribution in Berks, Bedfordshire, Norfolk and Sussex.

In its development the plant is somewhat singular. The deeply buried flask-shaped bulb sends up in March a tuft of leaves something like those of the Blue-bell, but which grow to a length of two feet. They are too weak to support themselves and are quite decayed before the flowers appear in June. It follows that in obtaining a complete specimen a certain amount of trouble and labour is entailed, beyond the raising of a bulb from a probable nine or ten inches of stiff clay.

The young, unexpanded spikes are often gathered and eaten like asparagus, and form a substitute very little inferior to the cultivated esculent. They are tied in bundles and sold in Bath Market and in the shops of the city under the names of “Bath asparagus,” “wild asparagus,” or “wild grass.” I do not know how long this practice has prevailed, but it is mentioned in Collinson’s *History of Somerset* (1791), and is doubtless of long standing. An article on “Bath Asparagus,” illustrated with a figure of a market bundle of the heads, appeared in the *Gardener’s Chronicle* for 1873, p. 843.

[*O. nutans* L. *Drooping Star of Bethlehem*.

Alien; a garden bulb, now naturalized in one or two spots; very rare.

April.

**G.** Lane by Knole Park, Almondsbury; *W. A. Harford*. Hedgebank by the roadside from Wickwar to Charfield, on the right hand going from Wickwar, for nearly two hundred yards. Known for at least 40 years to residents in the neighbourhood, who gather the few scapes that are produced, before the flowers open, and keep them long in water. Said to occur in another place at nearly a mile from the first. There is ploughed land on the other side of the hedge, and no garden cultivation within a considerable distance. As blue-bells grow plentifully with the *Ornithogalum*, and the hedge is thick with thorns, the foliage of the plant will escape notice unless its peculiar central streak be borne in mind and carefully looked for.]

## GAGEA *Salisb.*

**929. G. fascicularis** *Salisb. G. lutea* Ker. *Yellow Star of Bethlehem*.

Native; in woods and bushy places; rare. Flowering so uncertainly it must be sometimes overlooked.

March and April.

**G.** In thickets at Granham Rocks [“Grandam Rocks;” between Upton Cheyney and Tracy Park], April 1839; *Herb. Flower*. Marked “Grandmother’s Rock” on the Ordnance map. Mr. Flower told me in 1881 that the *Gagea* had been plentiful there at one time, but he believed it had been destroyed by quarrying. It was rediscovered, however, by Mr. F. Samson in 1905, when several were seen in flower. Wyck; *Rootsey’s list* (1828). *Ibid.*; *Worsley, Cat. in New Bot. G.* (1835). Mr. Flower wrote (1884) that he had found it at



Wyck, very sparingly among bushes on the left bank of the Boyd. Monk's Wood; *Broome* and *Inman* in *Fl. Som.* But this wood is in Gloucestershire, a mile or so south of Cold Ashton. Beach Wood, below Hanging Hill, at 700 ft. ! Here again I believe we have the "thicket beyond Lansdown" of *T. B. Flower* in *Fl. Som.*, whence he sent specimens to a Linnean Society's meeting in 1885; and the "Wood on Lansdown" in *Fl. Bathon. Suppl.* Beach Wood lies on the northern slope of Lansdown contiguous to "Battlefields," and adjoins the county boundary. Miss Martin got the plant there in 1901-2-7, and I saw one flower in 1908.

**S.** St. Anne's Wood, Brislington; *Rootsey's list* (1828); and *Herb. Perrin*. The late Rev. G. W. Braikenridge told me (1878) that a memo. of his father's, written sixty years before, mentioned *Gagea* at St. Anne's. Messrs. Rootsey and Flower thought it had been extirpated by the construction of the Great Western Railway, and that is likely enough, for none has been seen there since. Copse on Failand Hill, 1891; and a very few flowers there also in 1904; *Mrs. Alfred Brittan*. When the late Mrs. Brittan conducted me to the place in 1907 I saw only a fair quantity of foliage. Twerton Wood near Bath, 1847; *Herb. Clark*. From this station there are some exceptionally fine specimens in the Jenyns Herbarium, gathered by the Rev. Jenyns Blomefield many years ago. When, in April, 1893, Mr. D. Fry and I were permitted to examine the grounds at Twerton Wood House, we saw some plants in flower at one spot on the skirt of a wooded slope, and were assured that none existed elsewhere. Smallcombe Wood, Bath, 1901-2; *Miss Martin*. Collett's Wood on Claverton Down; *A. E. Burr*. Mr. Burr, who knew the locality well, informed me that after a disappearance of many years *G. lutea* came up plentifully and flowered freely in 1887. Twice subsequently I searched the wood thoroughly at the proper time without finding a trace of the plant. Wood north-east of Charmy Down; *Broome* and *Inman* in *Fl. Som.* Wood between Midford and Limpley Stoke, full of bloom in 1887; *A. E. Burr*. None could be found a year or two later when Messrs. Burr and Fry went to the place together. The locality may have been within the Somerset boundary, but is perhaps in Wilts. Wood near Midford, 1901-2; *Miss Martin*. Hinton Blewett; *Wright* in *Fl. Som.* "Murdercombe near Mells, 1887, when the number of flowering plants was extremely small: the paucity being not due to the lateness of the Spring but, as the Rector of Mells informed me, the plant always flowers there very sparingly."—*D. Fry*. Going to Murdercombe in March, 1900, I found six plants in bud. Bonnyleigh Wood, and copse between Frome and Beckington; *Dr. H. F. Parsons*. Old Ford, near Frome; *D. Fry*. It may be permissible to mention the Frome localities although they are a short distance outside our limits.

Earliest British record:—"Angliæ nemorosis Sommerseti Ornithogalon luteum collegimus."—*Lobel. Adv.* p. 56 (1570).

For me this little plant has had a great attraction, though nothing could have proved more unprofitable than its pursuit. I cannot tell how many fruitless hours I have spent in searching for its yellow stars in places whence *Gagea* had been reported at some time or another. It has been said to "avoid

the dark heart of the woods, and cling to the border-land of sunlight and shadow ; " but the trouble is that one can never say whether it will certainly appear at all. In none of the localities named above may its flowering be relied upon, and in some not even the leaves may show for years together, although a large number of plants may be known to exist at the spots. This experience corresponds with that of observers in other districts. As a rule hundreds of barren individuals are associated with the few that flower, and these may be easily recognized by the foliage—the single leaf produced by each being commonly smaller than that belonging to a flowering specimen. It is obvious that these crowded colonies have not sprung from seed, because the *Gagea* seems seldom or never to set seed. Certainly I have not met with a botanist who had seen a ripe capsule. The race is perpetuated by numerous minute bulbils set off from the base of the parent bulbs, as many as twelve or fifteen from each. As the young ones increase in size they too give rise to more bulbils—tiny as grains of sago. All these should put up a solitary radical leaf, but appear to need years of development before they reach the flowering stage. And then probably some special conditions of warmth and position are necessary to ensure the production of blossom. At Grandam Rocks with a southerly exposure there has been noticed a larger proportion of flowering plants than at Failand, where on the Hill House estate the patches of *Gagea* face north and east.

### SCILLA *Linn.*

#### 930. *S. autumnalis* L. *Autumnal Squill.*

Native ; on St. Vincent's Rocks and perhaps on Clifton Down. Very scarce. No longer known in Somerset. August and September.

**G.** The earliest accounts relating to this species at Clifton, *viz.* that of Ray towards the end of the seventeenth century ; those of Sir Joseph Banks and Dr. Lightfoot in 1767 and 1773 ; and of Hudson, Withering and Smith ; all refer to St. Vincent's Rocks as its sole locality, and specimens from thence, with dates coming down to about 1860, are in the National Herbaria as well as in most local collections. But the three following records point to the plant's occurrence in a slightly extended area, though it must be remembered that by some of the older writers St. Vincent's Rocks were understood to include the whole side of the Avon Gorge. Clifton Down ; *Worsley, Cat. in New Bot. G.* (1835). Slope of hill, Clifton Down, Sept. 1850 ; *Herb. Cundall*. On a bank not far above the Bridge Valley Road, 1859 ; *Mrs. Lainson*.

**S.** Rocks in Burwalls Wood, facing the Hotwells ; *Sole, in Collinson's Hist.* (1791). Somerset ; *Gapper, Cat. in New Bot. G.* (1835). "I have found it on the Leigh side of the river before the Bridge was finished."—*T. B. Flower*. It is probable that these explicit statements did not come under Mr. Murray's notice, as they are not mentioned in the *Flora of Somerset*. I am sorry not to have any recent information in support of the plant's claim to be a Somerset species, especially as it has no other station in the county.

The figure in *English Botany* was drawn in 1792 from a Bristol specimen furnished to Sir J. E. Smith by Dr. Jno. Ford of this city.



After Swete's time or from a little later the plant seems to have eluded observation for many years. At the date (1885) of my earlier work on this section of the Bristol flora its disappearance and possible destruction were ascribed to the completion of the Suspension Bridge and its approaches. In 1888, however, I had the pleasure of publishing the following "Supplemental Note" in the *Proceedings of the Brist. Nat. Soc.* vol. 5. "It is gratifying to be able to announce that the hope expressed in the *Flora*, p. 201, that this rare bulb might yet be rediscovered on St. Vincent's Rocks, has been justified. For this we are indebted to Mr. J. C. House, who, during a scramble in the autumn, came upon a patch of about a hundred plants. It was somewhat perplexing to find that the spot was *made* ground, the site of ancient quarrying; but this circumstance has been accounted for in a very interesting and satisfactory manner. Mrs. Glennie Smith has kindly furnished an explanation which was conveyed to her by Mrs. Glennie, widow of Mr. William Glennie, the engineer, under Brunel, of many great works in the West of England. The account runs as follows:—When Brunel was about to commence his work on the Suspension Bridge, Mrs. Glennie told him that he was going to destroy the Clifton locality of *Scilla autumnalis*, as it grew just where the approach on the Gloucestershire side was to be made. The engineer at once informed himself of the exact spot, and before the ground was broken he made some of his workmen dig up turfs containing the bulbs and transport them safely beyond the reach and influence of the work he was about to begin. Mrs. Glennie could not remember, if she ever knew, the place to which the transference was made; but it seems tolerably clear that Mr. Brunel's care was effectual in preserving for us a choice plant, the locality for which, when undisturbed, was evidently of small dimensions."

Aided by Mr. House's information I soon found Brunel's patch. That spot is, I think, safe from molestation, and when I last reached it the Squill was flourishing. Then, about the year 1895, the continued existence of the plant in "the sward on the top of the rocks," just as noted by Swete (*Fl.* p. 78), began to be reported. Many people have become aware of this, and once or twice a far too exact description of the locality has been injudiciously furnished to the local newspapers by persons who thought they were reporting an original discovery. In consequence, the number of plants noticed fifteen years or so ago has seriously dwindled. But I am happy to say that there are two other spots upon the Rocks (making four in all) where a few of the pale purple blooms appear year by year.

## ALLIUM Linn.

[*A. Ampeloprasum* L. *Willd. Leek.*

Perfectly naturalized on the Steep Holm, where it seems to have been as abundant in the seventeenth century as it is now in the twentieth. Together with the Peony this has been assumed, perhaps too rashly, to be an "introduction." August.

The earliest record is by Ray in the *Historia Plantarum* (1688), as "*Allium montanum majus, Newtoni.*" A few years later, in 1696, Ray described this Leek in his *Synopsis Plant. Brit.* as "*Allium Holmense sphaerico capite. Great round-headed Garlick of the Holms—Island. In parva quadam insula Holms dicta in Sabrinae aestuario copiose provenientem observavit D. Newton.*"

The Rev. H. J. Riddelsdell (*Fl. Glamorgan*, p. 87) mentions a specimen from Flat Holm in *Herb. Brit. Mus.* He records it also from Porthkerry. A good patch was discovered on Minehead

Warren in 1906 by the Rev. E. S. Marshall, who considered it certainly not an escape from cultivation but possibly water-borne from Steep Holm.

In June, 1891, I saw this fine species in plenty upon a rocky slope at the Holm; and obtained herbarium specimens from two bulbs which flowered in the garden the year following. These, unluckily, did not long survive.

"Considered by some botanists to be the ancestor of the cultivated Leek; by others to be a degenerate survivor from the monkish garden known to have existed somewhere on the island; the monks, if Welshmen, would surely raise a supply of the national emblem." *Jno. Storrice*. Mr. Borrer and Prof. Babington both concluded that the presence of the plant upon Steep Holm was due to former cultivation. It does not appear to differ specifically from *A. Porrum*.

The following quaint memo. is not a botanist's record, but it seems to certify that a profusion of the Great Wild Leek existed at an earlier period than that of Ray.

"There is belongeinge to this Manour one little Iland called Stipe Holmes, being West from Norton Beauchamp 7 or 8 miles into the Sea called Sevearne, the which cont. by estimacon. xxiiij acres . . . whereuppon groweth nothing but a certen kinde of small fuell called Privet and Elder, and a kinde of wilde garlicke, esteemed to be of noe more value than the cuttinge and carrieinge awaie, nor yet that. There be also within the said Iland certain graie Conies, to the nombre of xx or xxx coples by estimac., but of noe value, because by experience had of them, they be so fedd with garlicke, privet and Elder (grasse lackeinge), that they doe saver of the garlicke and privet in eatinge."<sup>6</sup>

The aforesaid conies have become, during the centuries that have passed, even less desirable than is here described, for I learn on good authority that, as a result of long-continued interbreeding in so small a space, the Steep Holm rabbits have degenerated until they are now not much bigger than rats!]

### 931. *A. vineale* L. *Crow-Garlic*.

Native; in pastures and on dry banks and field borders; not very common but generally distributed. Much of it does not flower, and so it may be more frequent than is supposed. There are spots on our Downs where in early summer the turf may be thickly occupied by leaves of barren plants which will be withered and gone before the flowering season. July and August.

The bulk of the species with us is the *A. compactum* Thuillier, a state without flowers but having hard heads (sometimes double, triple or rarely quadruple), with closely compacted bulbils.

#### VAR. *bulbiferum* Syme.

With heads producing a dozen or so long-stalked flowers together with a number of loosely seated bulbils. In dry places, rare.

**G.** Permanent in loose soil on a ledge of St. Vincent's Rocks. A few plants on Henbury Hill, 1892. Two near Frampton Cotterell, 1904.

**S.** Near Keynsham, with the ordinary form. Near Stanton Drew! *Miss Ruddock*. Strawberry Hill, Clevedon; *Mrs. Lainson*. Brean Down, sparingly, 1897.

I am told that *A. vineale* so infests the hill pastures on the Sodbury range that the grazing is now of little value for dairy produce.

#### [*A. roseum* L. *A. ambiguum* Sm. & Sibth.

Alien, from Southern Europe, sometimes cultivated in gardens. Formerly established in Kent and Suffolk.

**G.** One patch of five or six plants, and two smaller ones at a little distance, on the Observatory Hill, Clifton, were brought to my notice by Mr. C. Wall in 1904. He had had them under observation some years, and found that the stems were usually gathered as soon as the flowers opened. In all, there were 16 plants in 1907, and about the same number two years later. It is a *bulbiferum* form, with mixed heads of flowers and bulbils.]

### 932. *A. sphærocephalum* L. *Round-headed Garlic*.

Native; very rare and local.

July and August.

\* Extract from an account book of the Manor of Norton Beauchamp written about 1625. *Gloucestershire Notes and Queries*, vol. IV, 1890, p. 539.



**G.** On some ledges of St. Vincent's Rocks, in small quantity. More plentiful on Durdham Down, nearly a mile from the first station.

First found by Dr. H. O. Stephens, as recorded by him in *Phytol.* II, p. 929, "On steep declivities of the cliffs, St. Vincent's Rocks; July 31, 1847:" the date on which he forwarded specimens for exhibition to the Botanical Society of London. Dr. Swete's account (*Fl. Brist.* p. 78), that the species was discovered by Dr. Stephens "on the most inaccessible part of the Great Quarry, below St. Vincent's Rocks," was evidently a misapprehension. When I reached the place for the first time in 1882 there were about twenty specimens, and nearly that number on subsequent visits. In 1910 a plucky lady of my acquaintance climbed the Rocks without shoes and reported the plant to be still in excellent order in two spots. The locality is not in the least danger from quarrying, as was erroneously stated to Dr. Syme (*Engl. Bot.* ed. 3, pub. 1865), but it suffers occasionally from the pranks of scrambling boys who, in attempting to gather the flowering heads, pull up root and all from the thin, loose soil. A friend, walking along the riverside road some time ago, picked up four fine plants with their bulbs that had been thrown down from above. We deplore this kind of mischief, of course, but know not how to deal with it. A sympathetic correspondent of *The Spectator* (July, 1907) suggested that this gem of the Bristol flora might be protected by railings. Although the writer showed himself to be imperfectly acquainted with the facts, his idea was extremely good; and, as regards the Durdham Down localities, could be easily carried out without detriment to the public.

On Durdham Down *A. sphærocephalum* occurs in larger number, but the plants are not so fine. Two colonies exist, a short distance apart, and at each one could formerly count at least forty heads. But whilst one of these shows no sign of trouble, the other has been more than decimated during the last decade, not by collectors I believe, so much as by children gathering "bunches" of wild flowers. One girl was seen to pull all the heads she could find at the place; and, unfortunately, the stems being tough the bulbs came along with them. The original vegetation of our Downs reasserts itself with surprising vigour within the small enclosures that have already been wired off around some ineffectual plantations, and it cannot be doubted that should the Round-headed Garlic be accorded a similar protection it would soon make good its losses.

These are the only localities for the species in Great Britain. It is found sparingly in the island of Jersey.

### 933. *A. oleraceum* L. *Field Garlic.*

Native; in pastures on both rock and alluvium, and on hedgebanks and field borders; frequent.

July and August.

**G.** Prope Bristolium, copiose; *Hudson, Fl. Angl.* (1762). Plentiful in a small hollow (since filled up) on Durdham Down, 1882 and 1883. Bank of Avon, Hotwells, 1842; *Thwaites* in *Herb. Watson*. In plenty along the bank of Avon near Sea Mills, both by the towing path and in an adjacent meadow: very sparingly also lower down the river towards Shirehampton Ferry. A

few stems with *Origanum* on a bank by Clack Mill below Combe Dingle, 1910 ! *Miss Roper*. Fields about Ashley ; *Stephens, Cat.* (1835). Stapleton ; *H. O. Stephens* in *Herb. Brit. Mus.* and *Herb. Watson*. Hedgebank on Henbury Hill, 1911 ! *W. Batt*. Cornfield at Lawrence Weston, 1833 ; *Herb. Powell*. Bank of the Severn, Glouc. ; *Herb. St. Brody*. Severn Bank near Hallen, extending 100 yards, 1910 ! *Miss Roper*.

**S.** Ashton Fields ; *Miss Atwood* in *Swete, Fl. Ibid.*, 1860 and 1870 ; *Herb. Flower*. There appeared to be no evidence of the plant's continuance in Ashton Fields until early in 1907, when Miss Roper drew my attention to some small clumps of foliage by the river near Rownham Ferry. These flowered in due time, although the place must be under water at every spring tide. On the Portishead Road, in several spots as one descends from Abbotsleigh ; more plentiful on the raised path above the road than by the roadside. Hedgebank on the north side of the same road, between Haberfield Bridge and Easton-in-Gordano : scores of plants along at least 200 yards of the bank, 1910 ! *F. Beames*. These were all chopped off whilst in full flower, by the hedge trimmers ; but a good many on the field side of the hedge escaped. On the edge of two fields at Easton-in-Gordano ; *D. Williams*. Brislington ; *Herb. Watson*. Clevedon, 1853 ; *Leo H. Grindon*. Sparingly in a field on the right of a lane leading from Ursleigh Hill to Publow, 1907 ; *D. Fry*. Plentiful for a short distance in a field hedge at Stanton Drew, 1887. The spathes of these plants were very long, the larger valves measuring nearly 8 in., and the shorter ones 3½ in. ; *D. Fry*. In plenty near the encampment on the hill, Weston-super-Mare ; but, as might be expected from the nature of the ground, the plants are smaller than those on the Avon bank ; *Id.* South Stoke, 1851 ; *L. Jenyns* in *herb*. In 1907 I found a fair quantity south of South Stoke, by the side of a lane leading to Combe Hay. Border of a wood near Bathampton ; *Miss Peck*.

The "*β carinatum* Sm." recorded from Sea Mills by Mr. Flower in *Swete, Fl.* p. 77, is merely a broader-leaved form of *oleraceum*, and now stands in the *London Catalogue* as *var. complanatum* Boreau (fig. 1658 in *Engl. Bot.*). This must not be confused with the very distinct *A. carinatum* of Linneus. Mr. Flower told me he was induced to include the plant in his list by an opinion of the late Prof. Don ; but *complanatum* is at best an unsatisfactory variety.

The Field Garlic is at present unknown in East Gloucestershire and the county of Wilts, and has but one station in Dorset (my own near Radipole was but temporary). It is generally of rare occurrence in South and West England, and often—as in S. Devon—restricts itself to calcareous rock. With us it seems singularly indifferent to soil or situation, flourishing alike upon limestone hills and on estuarial alluvium where the plants are periodically immersed in salt water.

[**A. carinatum** *L.* *Alien.* On the Observatory Hill, Clifton ; first observed in 1904 by Miss Winifred Mather and Mr. C. Wall. At that time there were only three or four flower-heads, but in 1911 at least twenty were counted. It is a native of dry hills on the European continent, but is not known in this country save in a few places where it has clearly been introduced. I strongly suspect that it was planted at Clifton with other species that appeared about the same time within a short distance of each other.]



[*A. siculum* Ucria. *Nectaroscordum siculum* Lindley. A rare and beautiful native of Sicily and Sardinia.

G. St. Vincent's Rocks; a very few plants, which I have no doubt were planted by some misguided enthusiast. First noticed in 1906 by Mr. C. Wall. The flowering scapes are usually gathered or broken off before they mature. A lovely thing in the garden border, and seems to do well in our climate. I find no other instance recorded of its introduction as a false wildling.]

### 934. *A. ursinum* L. *Ramsons.*

Native; very abundant in most woods, copses and sunken shaded lanes, throughout the district.

May and June.

First British record, 1551.—“Rammes or Ramseyes . . . groweth in woddess about Bath.”—*Turner, Herball.*

Too common a plant to require special localization. The flower is showy enough to deserve cultivation, and I have seen it effectively disposed in shapely clumps alternated with other gay perennials in a Redland garden. The drawback of course must be that the blooms when gathered emit such an unsatisfactory perfume.

A stem gathered near Woollard by Miss Roper had one valve of the spathe developed into a broad green leaf seven inches in length.

## ENDYMION *Dumort.*

935. *E. nutans* Dum. *Scilla festalis* Salisb. *Hyacinthus non-scriptus* L. *Agraphis* Link. *Blue-bell.*

Native; in woods and shady places; very common.

May.

This plant with numerous names is our most striking woodland ornament in Spring, and its “shimmering sheets of blue” have aroused emotion in many minds. It prefers a soil of deep loam with plenty of humus and moderate shade, and then the bulbs make their way down well below the roots of other woodland herbage. It thrives nowhere away from the shelter of trees and brushwood; unless it be, for a time, on the site of a newly made clearing; and so has been very nearly lost (two only could be found in 1910) from Brandon Hill, where at one time it was plentiful. A few still flower under hawthorns on our Downs, and a larger number in the Gully.

The perianth tint varies—as with blue flowers it is apt to do—to white and pink or flesh-colour. I have something like twenty localities for the white-flowered plant, in all cases growing with the ordinary form; but the pink is far scarcer. I remember once seeing it in quantity in a wood near Fortnight, south of Bath.

A curious variation with extremely long bracts (up to 2 in.), permanent in cultivation, was found by Mr. Arthur E. G. Way in Pillgrove Wood near Long Ashton, S. and is preserved in his garden. It appears to be widely known and is on record from several counties, growing together with the normal plant. The Editor of the *Journ. of Bot.* published the following note on a specimen received from Mr. Way in 1905. “The prolongation of both bracts gives the plant a remarkable appearance. Mr. Druce, who records it from various localities in Berkshire (*Fl. Berks*, 491), has named it *var. bracteata*, but according to Mr. Baker (*Journ. Linn. Soc.* xi, 256, 1870) this name had already been

applied to the plant in gardens :—‘forma hortensis adest (VAR. *bracteata* Hort.) bracteis valde elongatis 2 poll. vel ultra longis.’ To me it hardly seems to deserve a varietal appellation.”

“The common Hyacinthes do grow about the borders of fallowed feedles and pastures in sandy or gravelly ground, and are found especially . . . in the West partes of Englande. . . . The roote of Hyacinthe boyled in wine and droncken helpeth much against the venemous bitings of the field Spider.”—*Lyte, Herbal*, p. 206 (1578).

[*Muscari racemosum* Mill. *Grape-Hyacinth* or *Starch-Hyacinth*.

Alien; planted or an escape. Not infrequent in gardens. Though abundant over a large area in France it is a native only in one or two eastern counties of England.

**S.** On a bank near Wellow village, for several years. How or whence it came is not known; *Mrs. Dent Young*.]

## MELANTHACEÆ.

### COLCHICUM Linn.

#### 936. *C. autumnale* L. *Meadow-Saffron*.

Native; in pastures, open woodland, and old hedgebanks; rather common in North Somerset; much scarcer in Gloucestershire. August to October.

**G.** In a pasture close to Westbury-on-Trym, not seen lately. Plentiful in Cleve Wood, Bitton. A few clumps in the Vineyards Wood, Elberton. Yate. Iron Acton. Tortworth. Dursley. Beach Wood, near “Battlefields” under Lansdown; *Miss Roper*.

**S.** Brislington; *Swete, FL.*, and *Rev. W. H. Painter* in 1886. Plentiful west of Yanley Lane, and in the Wild Country. Bishport Wood. Pastures by the Bridgwater Road under Dundry, and on Dundry Hill. Field near Barrow Court. Failand Farm, and in several places on Failand Hill. Portbury, and on the higher ground between Charlton Woods and Naish House. Weston-in-Gordano. Clevedon; *W. E. Green*. Whitechurch. Keynsham. Publow. Compton Dando. Frequent by roadsides and hedgerows as well as in pastures about Norton Hautville, Stanton Drew, Stanton Prior, Chew Stoke and Chew Magna; *D. Fry*. Bishop Sutton. Compton Martin. Chelwood. Whitley Batch. Paul Wood near Temple Cloud. Hallatrow. Litton. Cameley. Harteliff Rocks. Wrington. Woods near Yatton. Ball Wood, near Congresbury. Meadows at Churchill. Winscombe. Abundant near Sideot and Shipham, and in old lanes and woodland on that part of Mendip. Woods on Shuteshelve above Axbridge. Long Wood, between Charterhouse and Cheddar Gorge. Horrington Bottom. Meadows at Wookey, and plentiful elsewhere near Wells; *Miss Livett*. Cranmore, and Asham Woods; *Fl. Som.* Mells, Murdercombe and Great Elm. Coppice wood at Hutton, rare; *St. Brody*. North Stoke. Fortnight Farm. Monekton Combe. Frequent in moist woods and upland pastures; *Fl. Bathon*.



Earliest local records.—“Middow Saffrone . . . Colchicum . . . I have sene it growe in the west cuntre besyde Bathe.”—*Turner, Herball* (1551).

“Colchicum anglicum candido flore . . . ac in collibus et montosis prope Bristolia et agro Somerseti.”—*Lobel. Adv.* (1570).

“Meadowe Saffron . . . is also found in this Countrie in fat medowes, and great store of it about Bath in England.”—*Lyte; trans. Dodoens' Herbal*, p. 367 (1578).

“In some meddowes about Bathe, and divers parts of the West Countrey.”—*How, Phytol. Brit.* (1650).

“Colchicum anglicum purpureum et etiam flore albo sed rarius. Meadow Saffron . . . in occidentalis Angliæ partibus in pratis humidioribus.”—*Merrett, Pinax*, p. 28 (1667).

The white-flowered plant is very lovely. As is shown by the records given above it was well known in this neighbourhood to the older botanists and is still quite frequent, growing with the type. There is an abundance on the hill-side above Compton Dando; near Chew Magna; at Chelwood and at Stanton Prior; and it is often met with at other spots in smaller numbers. I look on it as an albino sport, such as occurs in many species with blue, purple, or red flowers.

It has been suggested that *Colchicum* was originally introduced to this country. We cannot doubt, however, that it is indigenous with us: it is so abundant in aboriginal woods and pastures that there should be no more suspicion concerning its status in this district than respecting that of the Blue-bell. Still, its comital distribution in the British Isles is undeniably peculiar. Absent from Scotland, very local and scarce in Ireland, it is either unknown or of very rare occurrence in Kent, Sussex, Hants, the Isle of Wight, Devon, Cornwall and West Somerset.

An account of *Colchicum* flowering in Spring (March, 1880), both on Failand Farm and in pastures between the Bridgwater Road and Dundry, will be found in *Journ. Bot.* May, 1880. A similar abnormality was noticed at the same time in Herefordshire, Gloucestershire, and near Esneux in Belgium. I have seen no record of such an appearance since, and my plants certainly resumed the ordinary course the year following. The flowers were small with narrow segments, pale and sickly in tint, and their anthers were shrivelled and pollenless. This no doubt was merely a temporary state of the plants, induced by adverse climatic conditions. It is probable that the young corms were seriously impeded in their development by the remarkably early and severe cold of the previous autumn, coming after a cold and wet summer. Some of them, therefore, were not prepared to flower when the first frosts arrived and had to postpone that function.

Mr. J. G. Baker, to whom I forwarded a Failand specimen, said he had not previously seen a Spring-flowering plant of the species. He wrote:—“This is the Spring form of *C. autumnale* figured in *Reich. Icon. Germ.* fig. 951, = *C. vernum* Schrank, = *C. vernale* Hoffm., = *C. præcox* Spenner.” From the amount of synonymy one may infer that the variation is well known in Central Europe. Koch (*Fl. Germ. et Helv.*) says:—“Flores, inundationibus retenti,

vere cum foliis prodeunt, sed plerumque minores sunt genitalibus imperfectis." And Grenier et Godron, in the *Fl. de France*, write :—" Dans les lieux inondés, les fleurs retardées ne se montrent qu'au printemps." But the inundation theory does not apply at Failand or on Dundry.

### NARTHECIUM *Huds.*

#### 937. *N. ossifragum* *Huds.* *Bog-Asphodel.*

Native ; in elevated bogs on Mendip, peaty marshes, and on boggy hillsides ; rare and local. June and July.

**S.** Peaty fields by Max Bog near Winscombe ; *Miss Livett*. Bogs on Mendip, near Priddy and the Mineries. About the sphagnous sources of streams on the flanks of Blackdown. Peat moors south of Wedmore. Downhead ; *H. F. Parsons* in *Fl. Som.*

## JUNCACEÆ.

### JUNCUS *Linn.*

#### 938. *J. maritimus* *Lam.* *Lesser Sharp Sea Rush.*

Native ; in salt marshes ; very rare. July to September.

**G.** Marshes, New Passage, July, 1869 ; good specimens in *Herb. St. Brody*. I have no other record. Shirehampton marshes ; *Swete, Fl.* Unconfirmed. Both localities have been searched without success.

**S.** "Muddy bank of the Avon near Ham Green ; observed there in company with Mr. H. C. Watson in 1862 ;" *T. B. Flower in litt.* This observation stands alone, but I presume the voucher should be deemed worthy of trust. Portishead, 1841 ; *S. Freeman* in *Phytol.* I, p. 327. Here again we have an unconfirmed record, and no sufficient reason for doubting it. "Mouth of the Parret, in ditches ; not infrequent near the Channel ;" *J. C. Collins, mss. New Bot. G. Suppl.* (1837). If Mr. Collins were not mistaken in his determinations (and it is a little odd that his friend and companion, Thos. Clark, makes no mention of the plant), the rush must have quickly disappeared from most of his localities. I believe it was not again noticed in that region until Sept. 1897, when I found it on salt-marsh sand near Berrow in two spots : one small tuft and a second, much larger, half a mile from the first. The marsh there is liable to invasion by the sea whenever a high-water spring tide is backed up by a westerly gale.

#### 939. *J. effusus* *L.* *Soft Rush.*

Native ; in marshes and ill-drained wet ground in general. Very common. July.



The pith of this rush is used by Bristol florists as a decorative material in making up evergreen wreaths, etc. And it is this species, obtained from Nailsea, which is strewn in S. Mary Redcliffe on Whitsundays, by ancient usage. It was William Spencer, in 1494, who left money to provide these rushes. But since 1831 the supply has depended on the City Corporation, who now pay both for the ringing and for rushes strewn in the church at Whitsuntide.

**940. *J. conglomeratus* L. Common Rush.**

Native; in ditches and marshes. Common and fairly well distributed, but by no means so abundant as the last or the next species. I have noticed it to be unusually fine and plentiful in the neighbourhood of Lyde Green, G. July.

**941. *J. inflexus* L. *J. glaucus* Sibth. Hard Rush.**

Native; in marshes and damp places by roadsides; very common, probably our commonest species. July.

**942. *J. diffusus* Hoppe. Diffuse Rush.**

Native. Now regarded as a hybrid between *effusus* and *inflexus*, and is found always in company with those species. Very rare. July and August.

**G.** By the Leechpool, north of Yate! Discovered by Mr. C. Bucknall in 1910. He made a special search for the plant on noticing the profusion in which the reputed parents were occupying a large space, and at length found a single clump of it.

**S.** In Berrow dune-marsh; *Fl. Som.* and *Rev. E. S. Marshall*. I have been introduced to the plant in this locality; and, as Mr. Marshall pointed out to me, it is not entirely satisfactory. It favours *J. inflexus* too closely, and may perhaps be a secondary hybrid on that side. Several clumps near together on the peat of Catcott Moor, about half a mile south of the railway, 1910! Dean, near Cranmore; *Fl. Som.* Near Bathwick Cemetery; *Hopkins* in *Herb. Watson*.

I suppose this is one of the last plants with which a field botanist gets in touch: yet there is no difficulty in recognizing it when the characters are borne in mind. The stems are rigid, *green*, with continuous pith, stouter and smoother (much less striate) than those of *J. inflexus*; panicle erect; fruit small, narrow, usually ill-developed. It appears to be absolutely barren: although capsules are formed they produce no seed. Mr. Bucknall did not find a single one fertile in the whole of our gatherings; those capsules which seemed fullest and most promising contained only a fungoid growth. So far as my experience and information serve, *J. diffusus* never occurs in large quantity; as a rule there will be only a single patch of it even where a large area is overrun with rushes. This fact shows clearly enough that the plant is not propagated by seed.

**943. *J. obtusiflorus* Ehrh. Blunt-flowered Rush.**

Native; in bogs and peaty marshes; rare and local. By no means frequent in the West of England, and thinly distributed throughout the country.

July to September.

**G.** Ashley (Boiling Well); *G. H. K. Thwaites* and *W. E. Green*. Near Hallen, in swampy pasture formerly known as "Hallen Bog."

**S.** Plentiful between Ursleigh Hill and Pensford, in both flower and fruit at the end of September, 1887; *D. Fry*. Near Ham Green; *Miss Roper*. Nailsea Moor; *Miss Livett*. Sparingly near Yatton; *Miss Winter*. Walton Moor, near Clevedon, 1836; *Herb. Powell*. Still there in profusion on the peat, and in the adjoining Clapton and Weston Moors. Abundant in the bog at Max below Winscombe, and on some marshy ground adjoining. In a low-lying pasture between Hallatrow and Litton. Sharpham Park and Glastonbury peat moor, 1848; *T. Clark*. Walton Heath near Glastonbury, 1886; *D. Fry*. I have known it many years on a part of Shapwick Moor, where it extends quite half a mile. The S. Wraxhall locality of *Fl. Bathon*. (where the plant still grows) is in Wilts.

**944. *J. acutiflorus* Ehrh. Sharp-flowered Rush.**

Native; in marshes, moist woods, etc. Common and well distributed wherever wet ground is at all peaty or boggy. June to August.

**945. *J. articulatus* L. *J. lamprocarpus* Ehrh. Shiny-fruited Rush.**

Native; in similar situations to those of the last species, with which it often grows; common. June to August.

**VAR. *nigritellus* D. Don.?**

**S.** Formerly abundant on wet sand near Berrow before the dune marsh was drained for an extension of golf links. Now scarce.

This is a maritime form of the species, differing in its dwarf ascending stems which sometimes root at the nodes, and in a densely fasciculate habit of growth. It is classed in the *Manual* as a distinct species, and as such I at one time distributed a number of Berrow examples, both at home and abroad, none of which has ever been questioned. Still, I now think it doubtful if our plant be more than a variation induced by the peculiar conditions of its habitat.

**946. *J. bulbosus* L. *J. supinus* Moench. *J. uliginosus* Sm. Lesser Jointed Rush.**

Native; in boggy places on commons and moorland; rare. June to August.

**G.** In boggy ground near Mangotsfield Station, and swamps on the margin of Siston Common. Yate Common. Near Damery Bridge.

**S.** Ditches on the moors below Weston- and Walton-in-Gordano. Bogs on the slopes of Blackdown, and about the Mineries on Mendip. Weston-super-Mare; *St. Brody*. The Watchetts, near Wells; *Miss Livett*. Downhead Common, as usual viviparous; *D. Fry*. Common on peat moors in the south. Frequent in boggy places; *Fl. Bathon*.

**947. *J. squarrosus* L. Heath or Moss Rush.**

Native; on bare moors and upland heaths; rare and local. June to August.



**S.** Bedminster Meads; *Swete, Fl.* The prefixed asterisk implies that the plant was seen there by Swete himself, but a mistake may be suspected, as the record is unconfirmed and the locality quite unsuitable. Clapton and Walton Moors, near Clevedon. Boggy ground near the Mineries on Mendip, and about the top of Blackdown. Downhead Common. Glastonbury Moor; *T. Clark.*

**948. J. compressus** *Jacquin. Round-fruited Rush.*

Native; in damp roadside wastes and pasture land; rare. An inland plant. June to August.

**G.** Horfield, 1842; *Thwaites in Herb. Brit. Mus.* Ibid.; *Herb. Stephens.* By the high road near Bitton! *D. Fry.*

**S.** Bedminster Meads; *Swete, Fl.* Abundantly in three meadows on the right bank of the Chew near Bye Mills above Pensford! and on Keynsham Hams to the south of the railway embankment! *D. Fry.* Rather plentiful in the latter place from 1887 to 1896. Rodney Stoke; *C. Bucknall.* Clevedon; *Mrs. Lainson and Leo H. Grindon.*

Among characters that serve to distinguish this species from the next are the tufted rootstock; compressed stems about a foot high, often less; panicle rather loose, falling short of its bract; and a nearly round obtuse capsule that distinctly exceeds the perianth.

**949. J. Gerardi** *Lois. J. cœnosus* Bieh. *Mud Rush.*

Native; in salt-marshes and wet spots near the coast and on the tidal estuaries; common in such situations. Area entirely maritime. June to August.

There is plenty near the Avon under Sneyd Park and below Shirehampton, where the flats are occasionally flooded at high spring tides.

A pretty little rush, determined by Dr. Buchenau to be a form intermediate between *J. compressus* and *J. Gerardi*, was at one time plentiful in a dune marsh by the Channel shore near Berrow. My account of it was published in *Proc. Brist. Nat. Soc.* v, p. 233 (1888); and was copied thence into *Journ. Bot.* 1889, p. 49. As it appeared a third time in the *Flora of Somerset* I will not reprint it here. Mr. Druce found a similar intermediate in the Dillenian herbaria, collected "inter Greenwich et Woolwich" two centuries ago.

**950. J. bufonius** *L. Toad Rush.*

Native; in wet places by roadsides, moist clayey fields, and other spots where water has been standing. Common in most localities, but apparently absent from a few. The name does not occur in the many Clevedon plant-lists that have been published. I have seen it, however, at Walton-in-Gordano.

July and August.

**VAR. fasciculatus** *Koch.* A form with the flowers in fascicles of two or three, on shorter and thicker stems.

**S.** Roadside, Norton Malreward; *D. Fry.* Blackdown on Mendip, and on the peat moors; *Dr. C. E. Moss.* Berrow, in hollows among the sand-hills, 1900.

**JUNCOIDES** *Adans.* (*Luzula* DC.)**951. J. sylvaticum** *Kuntze.* *L. maxima* DC. *Great Wood-rush.*

Native, on wooded hillsides and shaded rocky banks. Very abundant in many places, but not of general distribution. April to June.

"Local in the oak and the ash woods of N. Somerset: absent from the oak-hazel woods. Most frequent in woods on the Greensand."—*Dr. C. E. Moss.*

**952. J. Forsteri** *Kuntze.* *Narrow-leaved Hairy Wood-rush.*

Native; in hedgebanks and woodland; very rare. April to June.

**S.** Coppice wood at Hutton, not common; *St. Brody, Fl. Weston* (1856). Bishop's Wood, Wells; *Rev. T. F. Ravenshaw in Phytol.* (1857). Som. north!; *Topogr. Bot.*

Bristol's claim to this plant hangs by a few slender threads. We have long hoped to strengthen the support by finding fresh stations for the species, but this has not yet happened. It grows within a few miles of our southern limit, and is fairly common in West Somerset: there is, therefore, good reason for believing that it may be present in localities other than those here specified, and I anticipate its rediscovery with confidence. As *L. Forsteri* is cited in *Topogr. Bot.* on the personal authority of the compiler, it must have been seen in the vice-county by Mr. Watson himself.

"A growing plant of *L. Forsteri* can be distinguished from one of *L. pilosa* at a glance, especially in fruit, as all the capsules on a panicle of the former droop in one direction, whereas those of the latter spread in *all* directions. The figure of *Forsteri* in *English Botany* does not show this feature, and is altogether bad."—*Briggs, Fl. Plymouth.*

**953. J. pilosum** *Kuntze.* *Luzula pilosa* Willd. *Broad-leaved Hairy Wood-rush.*

Native; in woods and hedgerows; common. April and May.

**954. J. campestre** *Kuntze.* *Field Wood-rush.*

Native; in pastures and dry grassy wastes; very common. March to May.

**955. J. multiflorum** *Druce.* *Many-headed Wood-rush.*

Native; on upland moors, and moist peaty ground; frequent but of course local. June to August.

**G.** Copse between Horfield and Stapleton; *H. O. Stephens in Swete, Fl.* Specimen in his herbarium. Yate Common. Open drives in the woods near Wickwar (*congestum*).

**S.** Failand (*congestum*); *D. Williams.* Downhead Common. Moory ground about the Mineries on Mendip, and on Blackdown. Near Cheddar. Wells; *Miss Livett.* Common on the peat moors.

Our more frequent form is the var. *congestum* (*Luzula congesta* DC.), with the clusters subsessile in a rounded head. The other form (*umbellatum*), with drooping stalked clusters, is most often met with upon Mendip.



## TYPHACEÆ.

## TYPHA Linn.

956. *T. latifolia* L. *Reed-Mace. Bulrush.*

Native; in ponds and swamps. Very scarce in West Gloucester; rather common in Somerset. June and July.

**G.** Shirehampton marshes; *Sweete, Fl.* Now extinct? In the great swamp on Folly Brook, north of Lyde Green. Near North Nibley; *V. R. Perkins*. By the Little Avon near Charfield Mills, and at Stone Mill; rare in that neighbourhood. Below Dursley Station; *Miss Gingell*.

**S.** Marsh near Ham Green. Moors near Nailsea, Tickenham and Yatton. Walton Moor. Pools by the railway between Yatton and Clevedon; and similarly near Congresbury, etc., on the Cheddar Valley line. Near Puxton, Worle and the old Weston Junction. Bishop Sutton. Litton. Chewton Mendip, common; *E. S. Payne* in *Fl. Som.* Houndstreet, and Great Elm; *Miss Roper*. Common on the peat moors. In the canal, river, and ponds near Midford; *Fl. Bathon*.

The *var. media* Syme seems to be plentiful on the peat, and has been mistaken for the next species.

957. *T. angustifolia* L. *Lesser Reed-mace.*

Native; by pondsides and in ditches; very rare. I have not seen a local specimen. June and July.

**S.** "Ditches at Burnham, not uncommon;" *J. C. Collins, ms. in New Bot. G. Suppl.* (1837). This was accepted for vice-co. 6 in *Topogr. Bot.* "Ditch by the roadside between Brent Knoll Station and Burnham. . . I distinctly remember noticing the marked separation of the male and female inflorescence," 1894; *S. T. Dunn*. There was no specimen in Mr. Dunn's herbarium when it came into the possession of Mr. Bucknall. Rhine between Cheddar and Yatton, very small; *Miss Mules, MS.* In one of the locks on the canal at Combe Hay; *Fl. Bathon. Suppl.* The locality is not represented in the collections of Jenyns or Flower.

The local standing of *T. angustifolia* must be regarded as unsatisfactory in the absence of vouchers. Persons unacquainted with the true plant are apt to be deceived by narrow-leaved forms of *latifolia*. Mr. Ferkins' plant from "the peat moor south of Wedmore" for example, quoted in my earlier work and from thence in *Fl. Som.*, has proved to be the *var. media* of that species. I have repeatedly had the Lesser Reed-mace reported to me by observers seated in railway carriages on the Cheddar Valley line. I know not if Miss Mules came into closer touch with her plant. Of course there is no special reason why *T. angustifolia* could not have grown at the places indicated at the periods named, and it may be well not to be too exacting in an estimate of these records.

Though nearly as tall, this is far slenderer than the last in all its parts. The long spike is not much thicker than a cedar pencil, and its barren and fertile portions are separated from each other with at least an inch of rachis between them.

**SPARGANIUM** *Linn.*

**958. *S. erectum* L.** *S. ramosum* Huds. *Branched Bur-reed.*

Native; in wet ditches and pools; common and well distributed.

June to August.

**VAR. *microcarpum* Neum.**

A smaller plant, with smaller fruit, less angular and less abruptly narrowed into a longer beak. In some respects it is an intermediate, and may be mistaken for *S. neglectum* by those who have not seen the latter plant.

**G.** St. Anne's Well, Siston! *Misses Cundall.* Swamp near Westerleigh. Large roadside pool north of Falfield, in plenty.

**S.** Abundant in the brook running through Keynsham Hams between the railway and the Bristol Road; *D. Fry.* Peaty ditches on the moor below Weston-in-Gordano. Pond at Kenn, 1907; *Miss Livett.*

The Falfield plant was very puzzling, inasmuch as it had an unusually close resemblance to *neglectum* in stature and appearance. At first I thought we certainly had got *neglectum*; but Mr. Beeby, the author of the species, decided otherwise, the fruits being too small and too numerous. A plant of like character is stated to be frequent in the neighbourhood of Malvern.

*S. neglectum* was described and figured by Mr. Beeby in *Journ. Bot.* 1885, p. 193, tab. 258. It is one of those plants which I confidently expect to be discovered in the district sooner or later, although hitherto it has eluded observation. It grows in West Gloucester at Frampton-on-Severn.

**959. *S. simplex* Huds.** *Unbranched Bur-reed.*

Native; in ditches and streams; rather rare.

July and August.

**G.** Baptist Mills; *Dr. H. O. Stephens.* Ditches near Stapleton; *Herb. Stephens.* Ditches below Shirehampton; *T. B. Flower, MS.* In the Frome near Cog Mill, between the "Cross Hands" and Iron Acton.

**S.** Ditches and marshland about Ashton; *Swete, Fl.* Weston and Tickenham Moors; *Miss Livett.* Nailsea Moor, and Walton-in-Gordano; *D. Fry.* Ditches and swamps between Yatton and Clevedon. In the Lox Yeo River below Winscombe; the floating form; *H. S. Thompson.* Marshland below Cheddar and Draycott, and about Wedmore; well distributed. Frequent on the southern peat moors. Canal between Camerton and Radford. In the coal canal near the Aqueduct; *Fl. Bathon.*

I suppose it must have been the floating state of this species that misled Swete. He wrote of *S. natans* (*Fl. Brist.* p. 82) that it occurred in "ditches and marshes" as if common about Bristol. The true *S. natans* (*S. affine* Schn.) is unknown in the West of England.



**960. *S. minimum* Fr.** *S. natans* Sm. *Small Bur-reed.*

Native; in peaty waters; very rare.

July and August.

**G.** Reported from the Berkeley Canal by *Dr. St. Brody*.

**S.** Turf moor, Burtle, 1835 and 1836; *Herb. Clark*. Specimens of Clark's gathering are in my possession. Ditch on Shapwick Moor, July, 1906; *C. Bucknall*. Only one or two plants were seen, growing with *Utricularia minor*. Pools on the peat moor south of Ashcot Station; *Fl. Som*.

## ARACEÆ.

### ACORUS Linn.

**961. *A. Calamus* L.** *Sweet Flag.*

Denizen; by the sides of rivers and ponds; rare.

June to August.

**G.** Pond by the roadside (Beck's Pool), Frenchay. Reported from the Berkeley Canal by *Dr. St. Brody*.

**S.** In old turf-pits at Wedmore; *Sole in Collinson's Hist.* (1791.) Marshes near Glastonbury; *Withering*, ed. 2, (1796). Not seen on the peat in my time. Pond at the entrance to Barrow Court, flowering plentifully in 1904. By the Avon, at intervals, in five or six spots on both sides of the river below Bath; all in Somerset. At the Royal Old Ferry, Twerton, 1857; *Herb. Flower*. I saw it there in 1897. Mr. D. Fry has shown me patches of the plant on the right bank of the Avon near Newton Bridge and under Kelston; and on the left bank above and below Saltford; in every case flowering very sparingly. Stated in *Fl. Bathon. Suppl.* to have been introduced into the Avon at Bath by the late T. Haviland Esq.; and at Batheaston by Mr. Walters.

The history of this plant has been investigated by Dr. Trimen and Mr. A. G. More (See *Journ. Bot.* ix, pp. 163, 246). It appears that the Sweet Flag did not exist in middle or western Europe prior to 1574, when Clusius received roots from Constantinople and cultivated them at Vienna. Thence specimens were distributed to various European gardens, and being easily propagated the plant spread rapidly westward. It was growing in the Royal Gardens at Paris in 1586, and arrived in Gerard's London garden about 1596. So far as Great Britain is concerned the *Acorus* probably originated in Holborn, where Gerard says it prospered "exceedingly well;" and whence doubtless many other gardens soon received a supply. As a British wild plant it was first reported from Norfolk in 1660.

### ARUM Linn.

**962. *A. maculatum* L.** *Cuckoo-pint. Lords and Ladies.*

Native; in woods, hedgerows and shady places generally. Very common.

April and May.

This is perhaps the first plant to put its leaves above ground at the beginning of the year. They show themselves sometimes soon after Christmas in a mild winter, and grow very rapidly. In this district plants with spotted and plain leaves occur with about equal frequency. The spots do not accompany any noticeable distinctive feature; and, like those on the leaves of other maculate plants (*Medicago*, *Lamium*, *Hieracium*), do not appear to depend on any observable condition.

The Italian Cuckoo-pint (*A. italicum*) is a larger and stouter plant with a yellow spadix, and deeply cordate-sagittate leaves appearing at the beginning of winter, the basal lobes of which are very long and divaricate. It has been found in Britain only in the immediate neighbourhood of the sea on the south coasts. Here and there on the south-eastern side of our district I have met with luxuriant specimens of the common *Arum* that approach *italicum* rather closely. Their broad, membranous spathe falls in front as a flaccid flap, and the large leaves have stalks of a foot or more long. But they are vernal, and the lamina is not of the right shape. Moreover, the club of the spadix is purple.

The structure and functions of the spathe and spadix of these plants in regard to fertilization etc. have been discussed by many writers, who are not all in agreement. It has been argued that the *Arum* may rank among carnivorous plants, digesting the bodies of those insects which fall starved or stupefied at the bottom of the spathe. The evidence adduced on the presence of absorption glands, necessary for nutrition from such material, is, however, insufficient. Without doubt the spathes are visited in great numbers by small flies (*Psychoda*) which may collect inside the chamber to the extent of several hundreds. The fringe of filaments prevents them from flying out again, but not from *crawling* out. These small flies, attracted by the peculiar odour given off by the spadix, probably enter the chamber for warmth and shelter; since during the night the temperature of the cavity may be 2-3° C. higher than that of the external air, and in early Spring this may be a consideration. Many die, and a layer of dead flies may accumulate at the base of the chamber. —Dr. A. H. Church.

The further attention of physiological botanists may be, and doubtless will be, profitably directed to such an interesting subject.

The fresh root (corm), like the rest of the plant, is very acrid and poisonous; but it contains a large amount of nutritious starchy fecula. This starch, separated by crushing and washing, was formerly prepared for laundry work and other purposes; and at one time was much esteemed in the Island of Portland, Dorset, as a food for sick folk. In 1797 the gold medal of the Society of Arts was awarded to Mrs. Jane Gibbs of Portland for producing starch, suitable for economic purposes, from material unfit for the food of man. This industry, pursued at length by a few poor women, has now died out. A paper on "The Portland Arrowroot" by the late Thomas B. Groves, of Weymouth, is published in *Phytol.* IV, p. 1030. The "popular" paragraph in *Engl. Bot.* ed. iii, which relates that "large quantities of this farinaceous substance are collected . . . in the dry and sunburnt districts on the banks of the Bristol



Channel [!] and . . . used to adulterate arrowroot," is purely imaginative. A similar statement occurs in J. E. Taylor's *Half-hours in the Green Lanes*, p. 227, where we read that "the corm contains a large quantity of starch that has been *misused* in commerce for the purpose of adulterating arrowroot." Both libels seem to be based on some confused notions connected with the old Portland industry. An adulterator would surely turn to the potato for a supply of cheap starch, rather than busy himself with the roots of Arum.

## LEMNACEÆ.

### LEMNA Linn.

#### 963. *L. trisulca* L. *Ivy-leaved Duckweed.*

Native; immersed in the water of ditches and stagnant pools, frequent.

June and July (but the flower is unknown to me).

**G.** Marsh ditches below Shirehampton and Lawrence Weston. In St. Anne's Well, Siston. Old quarry pit on the east of Bury Hill near Moorend! *A. Wait.*

**S.** Ditches near the Channel shore at Sheep House, above Portbury, with the three other species; *Miss Agnes Fry.* Weston, Clapton, and Walton Moors. Yatton and Clevedon; *D. Fry* and *W. E. Green.* Tickenham Moor; *Miss Livett.* Ditches in the lowlands of the Cheddar Valley. Canal at Radford and Combe Hay. Sidcot; *W. B. Waterfall.* Weston-super-Mare; *St. Brody.* Uphill, in a pond near the Station; *Rev. E. S. Marshall.* Easton, near Wells; *Miss Mayow.* Common throughout the levels south of Wedmore. In the Avon above Bath.

#### 964. *L. minor* L. *Lesser Duckweed.*

Native; very common everywhere on stagnant water. I have not seen the flower of any Duckweed. June and July.

#### 965. *L. gibba* L. *Gibbous Duckweed.*

Native; chiefly on brackish water; not very frequent save in sub-maritime flats. June to August.

**G.** Westbury; and Horfield; *Swete, Fl.* Plentiful in lowland ditches near the Severn, from Oldbury and Littleton down to Shirehampton and Avonmouth.

**S.** Claverham Moor and Yatton; *Miss Winter.* Brackish ditches by the Channel in the parishes of Portbury and Easton-in-Gordano. Near Hutton; *St. Brody.* Rhines below Cheddar; *T. B. Flower.* Wedmore Turbary; *Herb. Watson.* Burnham; *W. B. Waterfall.* Frequent on the peat moors. Coal canal at Midford; *C. Bucknall.* In the Avon above Bath; *S. T. Dunn.*

In October, 1906, the Rev. E. S. Marshall and I found *L. gibba* deposited

abundantly at high-water mark along the north bank of the tidal Brue below Highbridge. The plant had come down through the sluices from marsh drains on that river, or from the Parret.

**966. *L. polyrrhiza* L. Greater Duckweed.**

Native; on stagnant water, chiefly in rhines of the peaty lowlands in the southern portions of the district. July.

**G.** "Bristol;" *S. T. Dunn*. In a pond near Stapleton, 1882. Hallen Marsh, 1894. Ditch at Ingst. Littleton-on-Severn. "Very common in horse ponds;" *Swete, Fl.* Not so at the present day.

**S.** Ditches under Failand between Portbury and Clapton, and near the Portishead railway. Sheep House, near the Channel; *Miss Agnes Fry*. Yatton and Kenn. In many ditches below Cheddar and Draycott. Sidcot; *W. B. Waterfall*. Rhines near Honey Hall, between Churchill and Congresbury. Pond near Uphill Station; *Rev. E. S. Marshall*. Near Brent Knoll. Plentiful below Wedmore, and throughout the peat moors. Canal basins, Bath; *T. B. Flower in Fl. Som.*

*L. polyrrhiza* is commonly believed not to flower in this country (neither in Britain nor France; *Syme*), but some flowering fronds were found near Wedmore in July, 1906, by Mrs. Gregory and Miss Peck.

## POTAMOGETONACEÆ.

### POTAMOGETON *Linn.*

**967. *P. natans* L. Floating Pondweed.**

Native; in rivers and ponds; rather rare. June and July.

**G.** In the river Frome near Stapleton. Pond at Henbury, and one at Hambrook. Abundant in the big pond at Froglane Pit, Coalpit Heath, and in a shallow stream running thence into the Frome. The Leechpool. Pond in a pasture on Goosegreen Farm, north of Yate. Itchington Moor; *F. Samson*.

**S.** In the Avon near Brislington, and at one or two points higher up the river. The Abbot's Pond, near Abbotsleigh. Yatton; *Miss Winter*. Nailsea and Clevedon Moors; *D. Fry*. Pond on Paywell Farm, Charterhouse-on-Mendip! *R. V. Sherring*. Organ Pond by Eaker Hill, Chewton Mendip! *Miss Roper*. Pond between Worle Station and the village; *Rev. E. S. Marshall*. In the canal basins; *Fl. Bathon*. Still in the canal near Combe Hay, 1901. An "occasional species" in rhines on the Levels; *Dr. C. E. Moss*.

**968. *P. polygonifolius* Pourr. Oblong-leaved Pondweed.**

Native; in boggy streamlets and peat ditches; rather local.

June and July.



**G.** Ditches about Yate Common. Near Cromhall. Tortworth Park, 1892. Berkeley. Dursley.

**S.** Tickenham Moor; *C. Bucknall*. Downside Common, Edford. Downhead Common; *Fl. Som.* Boggy rills on the flanks of Blackdown. Pools on Mendip near Priddy and the Mineries. Ditch near South Brent. In the canal at Radford. Common about the peat moors of Burtle, Catcott, Ashcot, etc.

**969. *P. coloratus* Hornem. *P. plantagineus* Duct. *Plantain-leaved Pondweed.***

Native; in marsh ditches; rare.

June and July.

**S.** Walton-in-Gordano; *Herb. Borrer*. Abundant there in the Walton Moor ditches, 1905. Kenn Moor, 1901; fide *A. Bennett*. Axbridge; *W. B. Waterfall*. Peat ditches near Edington, 1902.

**970. *P. alpinus* Balb. *P. rufescens* Schrad. *Reddish Pondweed.***

Native; in streams and ditches; very rare.

July and August.

**G.** Near St. Philip's Marsh; *Dr. H. O. Stephens*.

**S.** Marsh ditch near Axbridge, 1881.

This plant should be carefully searched for in the Cheddar Valley lowlands, where there are plenty of watercourses that form typical localities. I have not seen any since 1881, and find no local specimen in my collection. The Gloucestershire habitat must have gone long ago: there is at present no suitable water in or near St. Philip's Marsh. Still, there is no reason for concluding that the species does not exist in the district. It was accepted for North Somerset in *Topogr. Bot.*, and by Mr. Murray in *Fl. Som.*

**971. *P. heterophyllus* Schreb. *Various-leaved Pondweed.***

Native; in pools and ditches; rare and local.

July and August.

**S.** Ditches, Bedminster; *Swete, Fl.* Ditch in Portishead marshes, Aug. 1897; *G. Brebner*. Specimen in *Herb. Roper*. Clapton Moor. Peat ditch in the moor below Weston-in-Gordano, 1902 and 1904! In the disused canal near Paulton, 1895!

Although this was rather hastily excluded from the *Flora of Somerset* on the ground that the old records by Flower, Swete, and St. Brody, from Bath, Bristol, and Weston-super-Mare respectively, were probable misnomers, it will be seen that some of those botanists, at least, are likely to have been correct. Swete's entry has the prefixed asterisk indicating that the plant was gathered by himself.

**972. *P. lucens* L. *Great Pondweed.***

Native; in sluggish waters; rare.

June to August.

**S.** Here and there in the Avon below Bath. Nailsea Moor! *D. Fry*. In the river Brue, 1881 and subsequently. Glastonbury Moor; *Fl. Som.* A member of the submerged-leaf association on the peat moors; *Dr. C. E. Moss*. Canal near Radford.

In 1904 I forwarded a set of specimens from Nailsea Moor, where the plant is plentiful in several ditches, to the Bot. Exch. Club Br. Isles, in deference to Mr. Fryer, who thought it desirable to have gatherings from all parts of the kingdom in order that variations might be noted. His comment on my gathering was—"A common state, which in the Fens has a tendency to produce its extreme, *cornutus*."

### 973. ? *P. decipiens* Nolte.

Native; in most of the localities given for the last species, with which it almost always grows.

Mr. Alfred Fryer, in *Journ. Bot.* 1890, p. 137, has a paper on this pondweed, and concludes that it is probably not a true species, but an aggregate of hybrids between *P. lucens* and *P. perfoliatus*. But he is in favour of retaining the specific name of Nolte until the question be more definitely settled. Mr. Fryer states that the plant never produces any pollen, the anthers being quite empty; and he finds the fruit to be always abortive. With us *P. decipiens* is plentiful in the canal at Bath, and along the course of the disused coal canal in such portions as still contain water, near Midford, Combe Hay, Radford and Camerton. It occurs likewise in the Avon between Bath and Bristol (one or two spots are near the Gloucestershire bank), and in the river Brue. These waters, in every instance, contain also the supposed parents. I have never met with a flowering specimen.

First reported in Britain by Mrs. Hopkins from the canal at Bath, 1867. Common in the Cambridgeshire Fens, where it is said to flower freely in warm summers.

### 974. *P. perfoliatus* L. *Perfoliate Pondweed*.

Native; in deep water; local.

July and August.

**G.** In the Avon, apparently frequent between Conham and Hanham.

**S.** In the Avon at Brislington. Pool among the sand-hills at Berrow, 1895. In the river Brue, 1859; *Herb. Clark*. In the disused coal canal near Midford and Paulton. In the canal, plentifully; *Fl. Bathon*.

### 975. *P. crispus* L. *Curled Pondweed*.

Native; in ditches and ponds; common.

June to August.

### 976. *P. Friesii* Rupr. *P. compressus* Sm. *P. mucronatus* Schrad. *Flat-stemmed Pondweed*.

Native; in water. Very rare.

July and August.

**S.** In the old coal canal near Bath. I saw a large quantity at Midford in 1901.

This, I suppose, must be the "*P. gramineus*, Grassy Pondweed," of *Fl. Bathon*. *P. gramineus* Sm. is synonymous with *P. obtusifolius* M. & K., which bears a considerable resemblance to *P. Friesii*.



**977. *P. pusillus* L.** *Small Pondweed.*

Native ; in ditches and streams ; frequent.

July and August.

**G.** River Frome, Stapleton ; *G. H. K. Thwaites* in *Sweete, Fl.* Shirehampton Marshes, Aug. 1856 ; *Herb. Flower.***S.** River Avon near the Cotton Mills and towards Keynsham. Kenn Moor. Yatton and Claverham ; *Miss Winter.* Ditches on Clapton and Weston Moors, in the Walton Valley. Weston Junction ; *St. Brody.* Ditches near Brean Down ; *Rev. J. C. Collins.* Turf moors, 1836 ; and moor S.E. of Burtle, 1857 ; *Herb. Clark.* Still abundant about the peat moors. In the canal by Bath ; *Fl. Bathon. Suppl.*VAR. *tenuissimus* Koch.**S.** Tickenham Moor ! *Miss Livett.* Catcott Burtle.**978. *P. flabellatus* Bab.** *P. interruptus* Kitaibel. *Fan-like Pondweed.*

Native ; in pools and ditches, often near the sea ; rather rare and local. It inhabits both fresh and brackish waters.

June and July.

**G.** Shirehampton Marshes, 1879 ; *W. B. Waterfall.* Ditch parallel with the Avon below Lamplighters, 1883. Brackish ditch near Littleton-on-Severn.**S.** In the Avon near St. Anne's, and at Saltford ; *C. Bucknall* fide *A. Bennett.* Ditches near Pill ! Ditches inside the Channel sea-bank between Portbury and Portishead. Wick St. Lawrence. Near Highbridge ; *Rev. E. S. Marshall.* In the old coal canal near Bath, Midford and Combe Hay.VAR. *scoparius* Fryer.

A slender, submaritime form with setaceous leaves.

**G.** Ditches in the Severn flats below Lawrence Weston.**S.** Pools between Uphill and Brean Down. Pit inside the sea-bank below Burnham ! *Rev. E. S. Marshall.*

Prof. Babington first noticed his pondweed in the canal near Bath in the year 1830 ; and, having satisfied himself that it was specifically distinct from *P. pectinatus*, introduced it in an early edition of the *Manual of British Botany*. It is evident, however, that the plant had been remarked by several botanists in other localities at a much earlier date. The first record—from Sheerness in 1724—is ascribed to Dillenius.

“ By the study of type-specimens in herbaria ; by continued observations made year after year in the field ; and also by cultivation of various forms of the *pectinatus* group, I have come to the conclusion that *P. flabellatus* is a good species . . . . It differs from *P. pectinatus* by its more robust and less submerged growth, and by the more fan-like expansion of its branchlets ; by its broad, flattened, 3–5-veined lower leaves, and above all, by its prominently keeled fruit. In *P. pectinatus* the fruit has no central keel, and the lateral ridges are usually very conspicuous. On transverse section the difference in the fruits of the two species becomes very apparent, the dorsal margin of the nutlet forming an elliptical arch in *P. flabellatus*, while in *P. pectinatus* it

forms a rounded arch . . . . Some confusion has arisen in the minds of botanists through a state of *P. flabellatus*, named *scoparius*, having been wrongly placed under *P. pectinatus* as a variety of that species [see *Engl. Bot.* ix, p. 54]: this form certainly has a superficial resemblance to the latter plant in its slender growth, and finely setaceous leaves; but these leaves have the structure of *P. flabellatus*, and the fruit is absolutely identical in character with that of the latter species."—*A. Fryer in Journ. Bot.* 1888.

**979. *P. pectinatus* L.** *Fennel-leaved Pondweed.*

Native; in pools, rivers, and ditches; rather rare. No doubt sometimes confused with the last species. June and July.

**G.** St. Philip's Marsh, 1881; *Rev. W. H. Painter*. Abundant in the Avon near Crew's Hole and Conham. Ditch in the Severn flats off Ableton Lane.

**S.** Ditches near Pill; *W. E. Green*. Yatton and Kingston Seymour; *D. Fry*. Nailsea Moor. Kenn Moor, 1901. Coal canal between Hallatrow and Camerton, 1896; *C. Bucknall*. Pond in the salt-marsh between Uphill and the Channel, 1905; apparently this. Weston Junction; *St. Brody*. Burnham; *H. Audcent*. In the river Brue. Glastonbury Moor; *Fl. Som.* Very common in the canal; *Fl. Bathon*.

**980. *P. densus* L.** *Opposite-leaved Pondweed.*

Native; in ditches and streams; common and well distributed.

June and July.

**RUPPIA Linn.**

**981. *R. maritima* L.** *R. spiralis* Hartm. *Greater Tassel-grass.*

Native; in brackish water; very rare.

August and September.

**S.** "In the Ditches in the Marsh going from Brean Down to Uphill, July 1773."—*Banks and Lightfoot*. Salt-marsh at the eastern end of Brean Down, 9 mo. 1836, (named *maritima* by Collins and Clark); *Herb. Clark*. Uphill; *Hort in Herb. Watson*. Still there in the salt-marsh towards Brean Down, 1909! *C. Bucknall*.

**982. *R. rostellata* Koch.** *Lesser Tassel-grass.*

Native; in brackish water; local.

August and September.

**G.** In two large brackish ponds near the Avon below Shirehampton, abundant. Noted in that neighbourhood by T. B. Flower many years ago. Pool about a mile below New Passage, 1866; *St. Brody in Herb. Brit. Mus.* By the Severn sea-bank, 1909.

**S.** Very abundant in rhines along the mud-flats near the mouth of Avon, south side. And in pools at St. George's Wharf and Portbury Wharf, mostly outside the sea-bank.



## ZANNICHELLIA Linn.

983. *Z. palustris* L. *Horned Pondweed.*

Native; in streams and ditches. Rather common in stagnant, muddy-bottomed pools and in salt-marsh ditches along the coast flats in both counties.  
May to August.

**G.** Filton Meads. Horfield; *G. H. K. Thwaites* in *Sweete, Fl.* Abundant in marsh ditches near Avonmouth, Lawrence Weston, Hallen and Pilning. Plentiful in a pond on Hanham Green; *D. Fry.* Parkfield; *Miss Roper.* Goose Green, near Yate.

**S.** Pools at Bedminster, Stockwood and Whitechurch. Ditches near Pill. St. George's Wharf. Portbury. Portishead. In the Land Yeo stream below Flax Bourton. Nailsea Moor. Yatton. Congresbury; *D. Fry.* Ponds near Weston Junction; *St. Brody.* Worle. Salt-marsh pools between Uphill and the Channel. Plentiful in the Cheddar Valley lowlands, and on the peat moors. Canal at Bath; *Fl. Bathon.* Still abundant in portions of the old coal canal.

VAR. *pedunculata* Reich. *Z. pedicellata* Fries.

**G.** Ponds near the embankment of the North Somerset Railway in St. Philip's Marsh, 1882 and 1887; *Rev. W. H. Painter* and *D. Fry.* Near Aust Cliff, 1869; *W. T. T. Dyer* in *Herb. Brit. Mus.* Ditch in Crook's Marsh, off Ableton Lane, 1903.

**S.** Near Worle; *F. J. Hort* in *Herb. Watson.* Uphill; *W. B. Waterfall.* Pool below Brean Down, very characteristic; *Rev. E. S. Marshall.* Brackish pool in the sand between Burnham and Highbridge.

[*Aponogeton distachyum* Thunb.

A South African aquatic, believed to have been introduced from the Cape of Good Hope in 1788. It is now often grown in this country in ornamental ponds for its beautifully perfumed white flower-spikes; and occasionally escapes into wild-looking situations.

**G.** Pond near Wotton-under-Edge; *W. E. Loxton.*

**S.** Pond at Englishcombe; *F. Samson.*]

## NAIADACEÆ.

## ZOSTERA Linn.

984. *Z. marina* L. *Grass-wrack.*

Native; on the mud of tidal waters and in the sea. Rare.

July to September.

**S.** In the tidal Brue, 1859; *Herb. Clark.* Burnham; *J. Poole* in *New Bot. G. Suppl.* (1837). Muddy pools near Brean Down; *St. Brody.* Coast between Brean Down and Burnham.

Earliest local record:—"Alga membranacea ceranoides, Bauh. . . . Grass Wrack . . . in maritimis et folio angustiori, from the Severn Sea."—*Merrett, Pinax* (1666).

[*Z. nana* Roth. Mr. Flower informed me in 1884 that he had gathered both species of *Zostera* in the Somerset estuaries; but I did not find local specimens in his herbarium. I saw, many years ago, on the mud between Steart Island and Steart Marsh, a growth which I thought likely to be *Z. nana*, but I could not get within reach of it. The evidence connecting this plant with North Somerset is therefore inconclusive.]

## CYPERACEÆ.

## CYPERUS Linn.

*C. longus* L. *Galingale*.

Native; now extinct.

**S.** This rare and beautiful sedge grew at Walton-in-Gordano in a small plot of wet marshy ground, believed to have been anciently a fish pond, and situated behind some cottages in the upper part of the village. Sole, in a MS. dated 1782, says of it: "Abundantly in a pond at Walton-in-Gordano, near Possit, Somerset, a village belonging to Sir Abraham Elton." Possit = Portishead. The plant continued to be plentiful until 1882; when, the ground having been sufficiently drained by digging some water channels, the occupier ploughed it and planted potatoes. The year following Mr. Fry and I found many stems along the intersecting ditches and some among the crop; but in consequence of the disturbance their development was much retarded and flowering delayed nearly two months. By 1887 the ground had become much less marshy: part was in cultivation; the remainder overrun by pigs and cattle. Notwithstanding the adverse human and bestial conditions, many plants of *Cyperus* were seen to be still in existence, none of which, however, seemed likely to flower. Some of these lingered on for a while in the moister portions of the place, disappearing finally about 1896. In 1897 we found the whole ground reduced to a mass of black mud by the trampling of animals, and "main nasty" as the tenant admitted. No sign of *C. longus* at this date, nor on subsequent visits. There can be no doubt that we have lost a very valuable species. Likely spots at the head of the Walton valley, near at hand, have been well searched, without result.

Three good sheets of Walton specimens, gathered in 1853, are in the Flower herbarium. And there is a fragment of "English Galingal" in the Somerset *Hortus Siccus* of Wm. Paine (1730), referred to under *Rumex pulcher*.

985. *C. fuscus* L.

Native; in peat ditches; very rare.

August and September.

**S.** Discovered near Clevedon, September, 1900, by Mr. S. J. Coley, of Stroud. The Bristol district has proved fruitful in surprises, but no discovery could have been more unexpected by local field-botanists than that of the second British *Cyperus* in North Somerset, within a mile of the spot where *C. longus* existed until recently. The locality is a peaty valley between the



Walton and Cadbury ranges of hills. Springs rise at the head of the valley, and drain towards Portishead by wide shallow rhines connected by intersecting ditches which readily become choked with vegetation. The plant was so conspicuous at the time, that Mr. Coley detected it as he cycled across the moor. Arriving at the place a few days later I found that the ditch (a main drain) had been cleaned out and the contents were lying upon the bank. Many specimens, but little withered, were recovered from the heaps; and others were seen at intervals along about 500 yards of the drain, and in another ditch nearly a mile away from the first. The next autumn there were a number of plants nearer the head of the valley, but none at the original spot, nor indeed for years afterwards. There have been seasons in which none at all could be found anywhere, and one when a ditch-bottom full of it appeared in quite another part of the valley.

Experience shows that there is nothing to wonder at in the fact that *C. fuscus* so long eluded observation in this locality. In the Walton valley there are probably more than twenty miles of ditches. The farmers who rent the pasture land are under obligation to rake out the main drains at least every four months, and in default are fined. The marvel is that this plant, an annual, continues to exist at all. For although, doubtless, much of it in fruit has at various times been thrown out and scattered on the adjacent land, no specimen has yet been met with growing outside a ditch. It does not even grow on the ditch-banks, but only in shallow water at the bottom. Now and then, I suppose, it may ripen and shed its copious amount of seed before being thrown out, and is thus maintained and perpetuated.

The comparative scarcity of this species is well brought out when it is noted that Great Britain having been divided for botanical statistic purposes into 112 districts *C. fuscus* has been found in only six of them; and from one or two of those the plant has disappeared.

The idea of recent introduction at Walton cannot, I think, be entertained.—“The European distribution is so general that the wonder is, not to find it in these islands, but to find it so rarely. A plant that is spread over nearly the whole Continent, from Middle and South Russia to Portugal; and from Sweden, Denmark and Belgium to the shores of the Mediterranean and the Levant, may well be expected to occur in more than two or three southern counties of England; and further research, in warm dry seasons especially, will be very likely to justify the expectation.”—*E. F. Linton.*

### SCHÆNUS *Linn.*

#### 986. *S. nigricans* *L.* *Bog-rush.*

Native; in wet peaty ground; very rare.

June and July.

**S.** Clevedon (no date); *Herb. Stephens.* But the earliest record is likely to be that of Leo H. Grindon, whose rather ornate account of a botanical ramble from Bristol to Clevedon and thence to Portishead, on July 6, 1842, is published in *Phytol.* I, p. 566. He wrote:—“By the side of a fresh-water spring which bubbles forth from amid the bosom of the rocks, was *Schænus nigricans*, brown

and muddy from the tide washing over it." Mr. Grindon's specimens, gathered on that occasion, came into the hands of his friend, Miss Martin, who placed them in the Jenyns Room at the Bath Institution. No others, save Stephens', were extant. Some of us, from time to time, vainly endeavoured to identify the pleasant "bubbling spring" described in so fair detail by the well-known writer, and these fruitless examinations of the coast convinced us that the *Schœnus* could not possibly survive. Yet, sixty-four years after Mr. Grindon's excursion, Miss Livett's persistence was rewarded. The plant was there, a single tuft a few inches across, producing about a dozen short stems. When Miss Livett conducted me to the place in 1907 I saw that we had often passed within a yard or two of the clump so happily hidden above high-water mark. The spring no longer bubbles, it barely trickles now, since fresh water is less plentiful than formerly along that line of shore. The great drought of 1911 reduced the number of flowering stems to three.

On July 9, 1900, Mr. W. F. Miller, botanizing with Mr. David Fry, hit upon a fine tuft in Max bog near Winscombe (*Journ. Bot.* xxxviii, p. 319). I went down a week later and saw the plant, which was very luxuriant but apparently present in only one spot. Mrs. Gregory tells me, however, that she has since found a fair quantity of it outside the bog, in a peaty meadow adjoining. The ground there is difficult to examine thoroughly. It is now the second station for the species in the county of Somerset.

### CLADIUM *Pat. Br.*

987. *C. jamaicense* Crantz. *C. Mariscus* R. Br. *Great Fen Sedge.*  
Native; in a peat swamp; extremely rare. July and August.

**S.** Wedmore and Burtle Moors; *W. Sole*, MS., 1782.

We should have felt grateful to this fine old botanist if he had attached to his records of interesting plants some description of the conditions under which they grew at the period of his explorations. The extensive lowlands of this district, in particular, with their paludal vegetation, must have altered greatly during the hundred and thirty years that have elapsed since he wrote; and, as regards the rarer bog and fen plants, such changes would be distinctly deleterious. We might feel sure that in those days, before the swamps had been systematically drained and turf cutting became general, many of them existed in far larger quantity and over wider areas than they now do. Still, the lost species—those that have entirely disappeared—are very few indeed. Of all the rarities mentioned by Sole as occurring on the peat moors there is now only one, I believe, that cannot be tracked to-day. We had naturally despaired of *Cladium*, for there was not a particle of evidence that, after Sole's time, any person had ever set eyes upon it in the localities named; and it seemed impossible that so conspicuous and characteristic a species could linger on and escape the notice of several generations of botanical lookers-out. So there was rejoicing when the news came in the autumn of 1910 that Mr. Henry Corder, of Bridgwater, with a friend, had rediscovered the Great Fen Sedge at Catecott Burtle. Aided by directions kindly afforded by Mr. Corder, and by



some good fortune—for it is not easy to map out a tiny spot upon the moors—Mr. Bucknall and I made our way to the solitary clump, four or five feet across, and looking like a small hay cock, that survives. It stands in a very wet swamp of considerable extent—possibly, in part, a primitive morass—and is unapproachable, even in a dry season, without a little wading. At other times it is likely to be immersed in several feet of water. The situation accounts in great measure for the Sedge having escaped notice for so long a period; and will, I think, secure it from molestation at any rate until the drainage of the moors becomes still more effective than it is at present.

### RYNCHOSPORA Vahl.

988. *R. alba* Vahl. *White Beak-Sedge.*

Native; in turfy bogs; very local.

July to September.

**S.** About the boggy sources of streams at Blackdown on Mendip. Plentiful in peat moors on the southern border of the district.

989. *R. fusca* Aiton. *Brown Beak-Sedge.*

Native; on peat. Very rare.

July to September.

**S.** Burtle Moor, near Mark (as *Schaenus juscus*); *W. Sole, MS.*, 1782. Old decoy pool near Meare, Aug. 1832; *Dr. Gapper in Herb. Clark*. "In shallow, partially dry pits and reenes, in the heathy ground near the Shapwick railway station, and occasionally in other parts of the moor, sparingly interspersed with *R. alba*. The first information I had of the occurrence of this very rare plant in Turf Moor was from Dr. Southby [formerly Gapper], who, about the year 1830, gave me specimens which he had gathered near the northern border of the moor."—*T. Clark, Cat.* 1856-7. Burtle Moor, near Shapwick, a very few plants, July, 1888; *H. S. Thompson*.

At about the date of Mr. Thompson's record the plant was reported by Mr. T. F. Perkins and one or two other botanists: I am not aware that it has been seen since. It was not met with by Dr. Moss during his recent ecological work on the moors; neither can I find it.

### ELEOCHARIS R. Br.

990. *E. palustris* R. & S. *Creeping Spike-rush.*

Native; in ditches, marshes and peaty meadows. Common. June and July.

991. *E. uniglumis* Link. *Link's Spike-rush.*

Native; in a brackish marsh; very rare.

June and July.

**S.** Dune marsh by the Channel at Berrow, July, 1894; *S. T. Dunn*. Ibid. 1896; *Mrs. Gregory*.

This very indistinct species is believed, so far as Britain is concerned, to be confined to situations within a short distance of the sea. I have not myself

seen the plant growing, and I felt some doubt on the naming after an examination of one of the above gatherings. The nut did not appear to be markedly striate when compared with that of *E. palustris*, but this character is not mentioned by Mr. F. Townsend in his minute description (*Fl. Hants*, p. 645), and so may not have the importance attached to it in *Engl. Bot.* and the *Manual*.

**992. *E. multicaulis* Sm.      *Many-stalked Spike-rush.***

Native; in peat bogs and wet moory places; local.      June to August.

**S.** Blackdown on Mendip, 1900! Downhead Common, 1901! Frequent on the peat moors between Edington Road and Glastonbury.  
Still unknown in West Gloucester.

**993. *E. acicularis* R. & S.      *Slender Spike-rush.***

Native; on the margins of pools and still waters; very rare. July and August.

**G.** Near Baptist Mills, Bristol; *Dr. Dyer* in *Bot. G.* (1805). Boiling Well; *S. Rootsey* (1828). These localities would be the same. Mentioned too in a MS. list of Bristol plants, circa 1830.

**S.** In many places along the edge of the canal between Bath and Claverton, July, 1893, when the water had been lowered and the mud was partially dry; *D. Fry*. The plant was recorded for North Somerset in *Topogr. Bot.* by *Dr. Thwaites* many years ago. His locality is unknown.

A very delicate little plant, producing usually close tufts of the slenderest stems and very tiny spikes. But it is commonly submerged, and in that condition does not flower. It may be overlooked therefore until by falling of the water the mud becomes exposed for a season.

## SCIRPUS Linn.

**994. *S. maritimus* L.      *Sea Club-rush.***

Native; plentiful in brackish ditches and salt-marshes near the Channel and tidal rivers; occurring often, however, many miles from the sea, as in the Cheddar Valley and on the peat moors, where we know the lowlands were at one time under salt water.      June to August.

**G.** Bank of Avon in several spots above Bristol. St. Philip's Marsh, 1890. Shirehampton Marshes. Lawrence Weston. Ditch between Hallen Bog and the Severn.

**S.** Bank of Avon near Rownham Ferry. Easton-in-Gordano. Portbury Wharf. Nailsea Moor. Kenn. Clevedon. Kingston Seymour. Wick St. Lawrence. Abundant in ditches near Worle and Weston-super-Mare. Nyeland. Wedmore. Brean. Berrow. Bason Bridge. Meare. Mark.

The inflorescence of this plant varies from an irregular compound umbel with some primary rays at least three inches long (*umbellatus* Reichb.), to a head or cluster of sessile spikes (*compactus* Koch = *conglobatus* Gray), or even



to the depauperate condition of a solitary spike (*monostachys* Sonder). These states are all represented in our lowlands; the first in peaty ditches far from the sea, and the others in salt-marshes on the coast near Brean, Berrow and Highbridge; the last-mentioned form being the rarest. Every connecting link can be traced through this remarkable series of variations, which are difficult to account for. They are known on the coasts of Northern Germany, where the distinctive varietal names have been conferred.

As Dr. Syme points out, in its most luxuriant growth this plant has somewhat the habit of *Cyperus longus*, although of course the spikes are larger and fewer; and this resemblance actually led to the latter species being reported to me from Mark within the last few months.

Wild fowl have been known to feed upon the swollen, tuberous roots of *S. maritimus*; and Withering notes that the roots, dried and ground, have been used as flour in time of scarcity.

**995. *S. sylvaticus* L.** *Wood Club-rush.*

Native; in woodland swamps and river valleys; rather rare.

July.

**G.** Boiling Well; *Rootsey's list*, 1828. *Ibid.*; *Stephens Cat.* 1835. Still there until recently, I believe, though I have not seen it for several years. Swamp below Siston Common, near Mangotsfield, 1883-9. Withy-bed on the Boyd at Bitton, very fine and abundant! *Miss Brooks*. Bank of stream by Yate Rocks! *Miss Roper*.

**S.** Formerly abundant in two marshy fields on the right bank of the Chew between Stanton Drew and Bye Mills; now much diminished by drainage. On the left bank of the Chew at Publow, 1911; *Miss Roper*. Abundant in a meadow under Highbury Hill near Hallatrow! A great bed of it in the swampy bottom of a wood between Englishcombe and Rush Hill! Bank of the Avon at Twerton, Bath, July, 1850, and June, 1860; *Herb. Flower*. Marshy field near Wells; *Miss Livett*. "In wet places, frequent;" *Fl. Bathon*.

**996. *S. lacustris* L.** *Bulrush.*

Native; in deep water; rare and local.

June and July.

**G.** Boiling Well; *Swete, Fl.* In the river Avon above Conham, here and there sparingly. At Hanham Mill dam or weir there is a larger quantity. Pool in the Boyd between Hinton and Pucklechurch, a solitary patch! *F. Samson*. Lake in Tortworth Park.

**S.** In the Avon on Saltford and Kelston weirs, and near Newton Bridge. Can be seen in the river from the bridge at Keynsham. Ditches between Hutton and Weston-super-Mare; *St. Brody*. I suspect that Dr. St. Brody's plant may have been the next species.

**997. *S. Tabernæmontani* Gm.** *S. glaucus* Sm. *Lesser Bulrush.*

Native; in lowland ditches; rare.

June and July.

**S.** Abundant for 60 yards or so in a marsh ditch near Nyeland, between Draycott and Wedmore, June, 1892! The plant was previously unknown in

North Somerset. In 1901 I saw it at another spot in that vicinity. On Kenn Moor; by a drove between Claverham and Clevedon; and in two other ditches at a little distance; 1900. Tickenham Moor; *Miss Livett*. Rhine by the sea-bank near Wick St. Lawrence! *F. Samson*.

The station (South Wraxhall Bogs, where the plant is plentiful) in *Fl. Bathon. Suppl.* is in Wilts.

**998. *S. cæspitosus* L.** *Scaly-stemmed Club-rush.*

Native; in boggy and heathy places; local.

July and August.

**G.** Lyde Green, June, 1910; *C. Bucknall*.

**S.** Plentiful on Mendip at Blackdown and about the Mineries. Downhead Common; *H. F. Parsons*. "In the bushy ground near Shapwick Station, plentiful, 1856;" *T. Clark*. Well distributed on the drier parts of the peat moors. Bog under Sham Castle; *Dr. Davis* in *Fl. Bathon*.

**999. *S. pauciflorus* Lightf.** *Chocolate-headed Club-rush.*

Native; on wet moors and marshland; very rare.

June to August.

**S.** Peat moor on Shapwick Heath, June, 1888; *Mrs. E. S. Gregory*. The earliest record for North Somerset. Bogs near the top of Blackdown on Mendip, July, 1896! *C. Bucknall*. Wet sand in Berrow Marsh, 1897; *Mrs. Gregory*. I saw the plant there in some quantity the year following, but none since.

**1000. *S. fluitans* L.** *Floating Club-rush.*

Native; in ditches, pools and watery pits, either floating or rooting in soft mud. Rare.

June to August.

**G.** Yate Common; in shallow pits often containing very little water, but which become pools in wet seasons! *C. Bucknall*. The Leechpool, some two miles north of Yate Common! Cited for West Gloucester, within ten miles of Bristol, by *Dr. Thwaites* in *Topogr. Bot.* Swete (*Fl. Brist.* p. 84) regarded the species as too frequent to need detailed localities.

**S.** Plentiful in two moorland ditches below Weston-in-Gordano, 1894; *C. Bucknall*. Mr. D. Fry and I have since seen it several times, usually in great quantity. Ditch on Tickenham Moor, 1902! *C. Bucknall*. Blackdown on Mendip; in shallow boggy rills above Tining's Farm! 1896 and 1907. Rhine on the peat moor near Shapwick Station, 1892; *Rev. R. P. Murray*. Abundant there in 1908!

First record for West Gloucester, *Thwaites*; and for Somerset, *Murray*; as above.

**VAR. *terrestre* Meyer.**

**G.** Yate Common; on the mud of partially dry pits, 1909! *C. Bucknall*.

Densely cæspitose, producing matted tufts of leaves but no flowering stems. The compound leaf-tufts are connected by short branches of the slender root-stock. Mr. A. Bennett kindly referred me to notes on a similar plant taken



from the bed of a shallow pool on Ditton Marsh, Surrey, many years ago by Mr. H. C. Watson. See *Rep. Bot. Exch. Club* for 1868.

**1001. *S. setaceus* L.** *Bristle-stalked Club-rush.*

Native; in marshes, boggy pastures, and on the margins of streamlets. Frequent, but seldom plentiful. June and July.

**G.** Stapleton; *G. H. K. Thwaites* in *Swete, Fl.*; and (1884) *W. E. Green*. Boiling Well; *Herb. Stephens*. Boggy meadow below Henbury towards Hallen, sparingly! By a little stream east of Mangotsfield Station, and on Siston Common! Ill-drained pasture west of Winterbourne Church. Yate Common; *C. Bucknall*. Damp wood between Charfield and Tortworth!

**S.** Marsh close to the iron-works at Ashton Gate! Upper Failand! *D. Fry*. Swampy spring-head at Lower Failand; *D. Williams*. Western end of the Old Park, Abbotsleigh! Peaty ditchbanks below Weston-in-Gordano. Spring-head between Dundry and Littleton; *F. Samson*. Yatton; *Miss Winter*. Clevedon; *W. E. Green*. Between Lord's Wood and Houndstreet; *Miss Roper*. Plentiful in peaty fields of the Max valley, Winscombe. Bogs on Blackdown, and near the Miners' Arms on Mendip. Rodney Bog, Chewton Mendip; *Miss Sherring*. Burnham; *H. S. Thompson*. Bog under Sham Castle; *Dr. Davis* in *Fl. Bathon*. Frequent on Hampton Down, Bath, 1886; *A. E. Burr*.

**1002. *S. cernuus* Vahl.** *S. Savii* S. & M. *Savi's Club-rush.*

Native. Very rare. A subarctic species. July to October.

**S.** Discovered Sept., 1900, in the peaty valley near Walton-in-Gordano by C. Bucknall and the author. The only tufts then seen were on clods recently thrown out in clearing a *Cyperus* ditch. But a week later we found a fair quantity on the banks of several other ditches in that locality. Most of our plant, if not all, belongs to the form or variety *monostachys* Hooker fil., with a solitary spikelet and no long bract.

**1003. *S. Holoschoenus* L.** *Round-headed Club-rush.*

Native; a single clump upon the Channel shore. August to October.

**S.** Discovered on the sands near Berrow, in October, 1896, by Mrs. E. S. Gregory, under the circumstances she described in *Journ. Bot.* 1897, p. 126. This is the most important addition which has been made to the Somerset flora during a very long period: a rare and interesting species, long supposed to have been lost, being thus restored to the county. I look on it as a case of survival upon our coast rather than of colonization from Braunton Burrows. The Berrow plant, in fact, is weak and small, and remarkably different from the sedge as it grows at Braunton.

The solitary clump, about fifteen inches across, continues to-day in practically the same condition, with regard to size and vigour, as when first found; though it has had some rude experiences during the fifteen years we have watched it. More than once it has been chopped down with a billhook, together

with the rushes around. In 1901 the wheels of a heavy waggon smashed it up. In 1906 a horse was tethered at the spot, and the effect of the animal trampling and dragging its chain to and fro was as if the plant had been viciously threshed level with the ground. Since then the sea has broken in once or twice and rolled over the place before a heavy gale, but the roots were not dislodged and the *Scirpus* may have got refreshment rather than injury on those occasions. The extension of golf links along the shore threatened at one time to make a speedy end. The Club officials, however, on learning the value of the plant, fortunately gave it protection, and it seems safer now than at any earlier period.

Prior to Mrs. Gregory's discovery there was little direct evidence to connect *S. Holoschoenus* with Somerset. Its earliest mention as a British plant is by Ray in 1688 (*Hist.* ii, p. 1303):—"Nuper in Angliâ detexit in comitatu Somerseti D. Stephens." But in his *Synopsis*, published at a later date, Ray says the plant had been "found by Mr. Stephens in Brounton Boroughs in Devonshire," as if he had become aware of an error in writing Somerset instead of Devon in the *Historia*. In the posthumous third edition of Ray's *Synopsis* (1724) Dillenius added a quotation from Petiver—"It also grows in Somerset and Hantshire." A good many years later, in 1791, we come to a list of plants communicated to Collinson's *History of Somerset* by W. Sole, who wrote that this sedge grew "near the sea-side below Watchet"—a statement afterwards copied into numerous works. Early in the nineteenth century many specimens marked "Watchet" seem to have passed through the hands of the late Prof. Henslow. The last of these were distributed in 1849 by the Edinburgh Botanical Society, without any name of collector, date, or other information. They were described (*Trans. Bot. Soc. Edin.* 1862, p. 320) as differing somewhat from the Branton Burrows plant in being much more slender, with smaller capitula, the latter sessile or solitary, never in compound heads; and so corresponding apparently with those from Berrow. Sole's authority is undoubted, and his statement would probably be correct, but it stands alone. In the *Flora of Somerset* Mr. Murray mentions a specimen derived from the Boswell herbarium and now in the possession of the Rev. E. S. Marshall, which is labelled, "Somerset—coll. Mr. Pick, Sept. 1862; ex herb. H. S. Fisher."

### BLYSMUS *Panz.*

**1004. *B. compressus* *Panz.* *Scirpus caricis* Retz. *Broad-leaved Blysmus. Compressed Bog-rush.***

Native; in oozy, peaty, or wet sandy ground, chiefly about springs; very rare. June and July.

**G.** Mill dam, Stapleton; and Stapleton Bridge; *Dr. H. O. Stephens* in *Herb. and Swete, Fl.* Ibid.; *G. H. K. Thwaites*. West Gloucester is credited with the plant in *Topogr. Bot.* through specimens obtained from Stephens. I am not aware that it has been seen at Stapleton in my time.

**S.** Plentiful on some boggy ground, about three miles west of the Suspension Bridge, 1909! For this valuable note I am indebted to the owner of the property.



It is not advisable to localize the place more precisely. In muddy sand near Uphill; *St. Brody*. Unconfirmed. By a pond among the sand-hills near Burnham, in good quantity, July, 1888! *Mrs. David Fry*. This ground is now enclosed. In Claverton Wood; *Dr. Davis* in *Fl. Bathon*. Bog between Hampton and the Quarry; *Dr. R. C. Alexander* in *Fl. Bathon. Suppl.* Wet ground below Hampton Rocks; *W. M. Rogers* in *Fl. Som.* The last three records must, I think, refer to the same locality, though "Claverton Wood" is certainly rather wide of the mark. Mr. Rogers' description fits the spot quite well. The *Blysmus* is still plentiful there in some seasons, though but little noticeable in others. On one visit I traced it along 200 yards or so, the hillside thereabout being boggy and full of trickling springs. But it had spread to ground much drier than might be thought suitable to such a paludal species. Wet places, Bannerdown; *L. Blomefield* in *Fl. Som.*

The distribution of *B. compressus* in North Somerset has some peculiarity. Its localities are curiously dotted about the vice-county at long intervals; from the extreme east to west, and thence to the southern border of our district.

### ERIOPHORUM *Linn.*

#### 1005. *E. vaginatum* L. *Hare's-tail Cotton-grass.*

Native; in bogs; local.

May and June.

**S.** Plentiful in bogs on Mendip about the Mineries, and near the Miners' Arms Inn. Abundant on some parts of the peat moors, particularly towards the eastern side, 1856; *T. Clark*. It is now much scarcer.

#### 1006. *E. polystachion* L. *E. angustifolium* Roth. *Common Cotton-grass.*

Native; in bogs and marshes; of wider distribution than the last.

**S.** Boggy spot near the compensation reservoir at Barrow Gurney, 1905! Pensford, and East Harptree; *R. V. Sherring*. Yatton; *Miss Winter*. Sparingly in the Max meadows, Winscombe; *Theod. Compton*. Litton. In all the bogs on Mendip, including swampy springs on the slopes of Blackdown. The Watchetts, near Wells; *Miss Livett*. Downhead Common; *Fl. Som.* Wet hollow among sand-hills on the coast near Berrow, 1895. In profusion on the peat moors; as is well shown by Mr. Crump's wonderful photograph of an abandoned turf-cutting, reproduced by Dr. Moss in his work on Somerset vegetation.

The Common Cotton-grass is quite unknown in West Gloucester save for just a stem or two detected by Mr. Bucknall in a Cotswold "Bottom" beyond our eastern border. (*Journ. Bot.* 1908, p. 358.)

#### 1007. *E. latifolium* Hoppe. *Broad-leaved Cotton-grass.*

Native; in a bog; very rare.

May and June.

**S.** Added to the flora of Somerset, and to our list, in August, 1907, by Mr. C. E. Salmon, F.L.S. He found it rather sparingly "in a delightful spongy

bog on Blackdown," near the summit. The moorland is so thickly overspread by the common species that it will never be easy to detect the rare one. My Bristol friends and I had often been on the ground without suspecting its proximity.

The plant was recorded in *Fl. Bathon.* from Claverton Wood by Dr. Davis, who distinguished it from *E. angustifolium*. But the record had no confirmation, and could not be accepted in *Fl. Som.* since, as the author remarked, "unfortunately neither a specimen, nor (I am told) the Wood, any long remains."

*E. latifolium* is absent from wide tracts of country in Great Britain and Ireland (Wilts, Sussex and Middlesex for example), and is rare and thinly distributed wherever it occurs. It has been found in South Somerset since Mr. Salmon's visit; and a fine locality for it in West Gloucester (outside our limit), where it grows abundantly in a secluded valley of the Cotswolds, was recently discovered by Miss Roper and her brother.

### CAREX Linn.

#### 1008. *C. dioica* L. *Creeping Diœcious Sedge.*

Native; in spongy bogs. Extremely rare, or possibly non-existent at the present time. May and June.

**S.** "Shapwick Moor, Somerset, July 12, 1855; *L. Jenyns.*"—*Herb. Jenyns.* I do not know that the plant has been seen upon the peat by any other botanist. There are no Somerset specimens in *Herb. Flower*, but Mr. Flower wrote in *Phytol.* V, p. 216, that *C. dioica* had been shown to him by the late Mr. Walker, of Bath, as having been found within four miles of that city. As such it took a place in *Fl. Bathon.*; and it appears in *Topogr. Bot.* for vice-co. 6 on the report of Mr. Flower.

This delicate little sedge is usually met with in the wettest, quaking sphagnum bogs; and that kind of habitat is becoming scarcer wherever one goes.

#### *C. Davalliana* Sm. *Tufted Diœcious Sedge.*

Native formerly; now extinct.

**S.** "Lansdown; in a boggy place on the slope of a hill on which is the first clump of Firs, about 1½ mile from Bath. Mr. E. Forster."—*Sm. Fl. Brit.* The place was long ago drained and built upon:—"when the Lansdown property came into the possession of the late William Beckford, Esq., of Fonthill. I visited the locality in the summer of 1852, and found all traces of it destroyed."—*T. B. Flower.* The original specimens are preserved in the Botanical Department of the British Museum. Figured in *Engl. Bot.*, May, 1809, from specimens "found at Lansdown, Bath, by Mr. Groult, and sent by E. Forster, Esq."

#### 1009. *C. pulicaris* L. *Flea Sedge.*

Native; in damp heathy or boggy places, and occasionally on drier ground; frequent. May and June.



**G.** "On St. Vincent's rocks, with the *Ophrys apifera*;" *Withering*, ed. 3 (1796). Durdham Down; *Swete*, *Fl.* Still abundant in some spots on Clifton and Durdham Downs; close to the Zoological Gardens, and on the upper slopes of the Gully. Penpole Point. Filton Meads. Alveston. Plentiful in open woodland about Wickwar, Inglestone Common, and the South Ridings.

**S.** Leigh Down; on ground near the reservoir, now enclosed. By the stream between Failand Farm and the Tan-pits; and in several other spots about Lower Failand. Walton Moor. Kenn Moor. Open ground about King's Wood, Yatton. Max bog, and meadows adjacent, near Winscombe. Shipham Bottom, Blackdown, and the Mineries on Mendip! In the plantation near the upper end of Cheddar Gorge! Downside Common, near Stratton-on-the-Fosse! Downhead Common! Frequent on the peat moors. Pastures at Hinton Abbey; *T. B. Flower*. Claverton; *Dr. Davis* in *Fl. Bathon*.

**1010. C. disticha** *Huds.* *C. intermedia* Good. *Soft Brown Sedge*.

Native; in boggy pastures; rather rare and local.

May and June.

**G.** Filton Meads; *G. H. K. Thwaites* in *Swete*, *Fl.* Still there in at least one enclosure. Abundant in a boggy meadow in Hallen Marsh. Vinney Green near Mangotsfield! *Miss Roper*. Wet meadows by Lyde Green! *C. Bucknall*. Compton Greenfield. Corner of field near the Parkfield Collieries! Itchington Moor, half a mile south of Tytherington!

**S.** Between Portbury and Portishead; *D. Williams*. Nailsea Moor. Kenn Moor. Marshes under Stone Edge Batch, and on Tickenham Moor! Yatton Moor, near the Cheddar Valley line, in plenty. Boggy pastures N.W. of Churchill! Meadows near Max Mill, Winscombe. Plentiful in marshlands of the Cheddar Valley, between Draycott, Rodney Stoke and Wedmore. And less frequently on similar ground between Berrow and Brent Knoll. Brackish marsh near Berrow, 1901; now gone? With *Blysmus* by a sand-hill pool near Burnham; *D. Fry*. Abundant on peat moors in the south. Swampy spot near the foot-path leading to Hampton Rocks; *T. B. Flower* in *Fl. Bathon. Suppl.* But is it not probable that *Blysmus compressus* was here mistaken for this *Carex*? No one else seems to have observed the latter on Hampton Down.

A form apparently corresponding to *f. minor* Peterm. is abundant on the peat moors, and was known until lately in Berrow Marsh. It has slender, elongated spikes somewhat interrupted at the base, in this wise simulating weak and simple states of *C. paniculata*, with which it often grows.

Another similiar but more striking form was gathered in a marsh on Itchington Moor, 1910, and deserves further study. In this plant the stems are nearly a yard high; the inflorescence is remarkably long, narrow and interrupted, without any enlargement in the centre and with no developed fruit; and the glumes are much paler than usual. Mr. A. Bennett tells me he has seen specimens that come near to it from Belfast and Forfarshire, and he queries it as a hybrid or sterile variety of the species. I see that Dr. W. A. Bromfield describes a like sterile variation in the Isle of Wight. This

Itchington Moor sedge, also, is considered by Mr. Marshall to fit in with *f. minor* Peterm., in *Flora*, xxvii, p. 327 (1844); as described in Aschers. and Graebner's *Synopsis*, Vol. II, part 2.

**1011. *C. arenaria* L.** *Sea Sedge.*

Native; on the sandy shore of the Bristol Channel, especially abundant in Kewstoke Bay; near Weston-super-Mare; and on the Brean and Burnham sands. Unknown to me in Gloucestershire. June.

**1012. *C. divisa* Huds.** *Bracteated Marsh Sedge.*

Native; in marshes near the sea; very rare. June and July.

**G.** Sparingly in a salt-marsh by the Avon under Sneyd Park, 1911! *Mrs. Sandwith*. A remarkable discovery, seeing that the spot had been under observation so many years before the sedge was detected. One clump in St. Philip's Marsh, Bristol, not far from the tidal Avon. Known for about eight years, and still in good order though threatened by extension of building, etc. This is an extremely slender plant with unusually small spikes, and may be the var. *chaetophylla* Daveau (*C. chaetophylla* Steudel), but does not quite agree with Continental specimens. See *Journ. Bot.* 1908, p. 327; and *Report Bot. Exch. Club*, 1908.

**S.** Kewstoke Bay, 1880; *T. F. Perkins*. In considerable abundance on Burtle turf moor near the sea coast, 1850; *R. Withers* in *Herb. Watson*. Burtle Moor, June, 1867; *Herb. Flower*. Shapwick Heath, 1906; *Miss Peck*. Personally vouched for by Dr. C. E. Moss as an "occasional species" among the dune-marsh plants of our Channel shore. I could never find it in N. Somerset, nor could Mr. Murray.

**1013. *C. vulpina* L.** *Great Sedge.*

Native; on ditchbanks, and in wet shady places. Common and generally distributed in suitable positions. The most abundant of the larger Carices.

June and July.

The var. *nemorosa* Rebert (*C. nemorosa* Lumn.), with longer interrupted spikes and long bracts, is not rare. I regard it as little more than a luxuriant "state."

**1014. *C. muricata* auct. plur.** *C. contigua* Hoppe. *Greater Prickly Sedge.*

Native; on dry grassy banks, the borders of fields, and occasionally amongst mowing grass; rather common.

June and July.

**G.** On the grassy bank of Avon under Sneyd Park. Plentiful in the lane leading from Stoke Bishop to Sea Mills. By the railway below Sea Mills. Blaize Castle Woods; *Miss Roper*. Pastures in Filton Meads, Stapleton; *Swete, Fl.* and *Herb. Stephens*. Abundant along a grassy hillside between Fishponds and the Frome opposite Stapleton. Pur Down. Between Stoke Gifford and Patchway, in several spots. Hedgebanks between Bitton and Oldlands Common; *Miss Roper*. Plentiful in a rushy bottom east of



Codrington. Dyrham. Tortworth. Falfield. Wood borders, etc. above Wotton-under-Edge.

**S.** By the narrow footway leading from Rownham into Ashton Park. Failand; *D. Williams*. Bishport. By Saltford Station; *D. Fry*. Pensford. Publow. Queen Charlton. By the bridge at Stanton Drew. Kenn Moor; *Miss Livett*. Clevedon, in several places. Sidcot; Winterhead; and Shipham on Mendip! Weston-super-Mare. Kewstoke. Plentiful about Wells. Great Elm! Hedgebanks between Twerton and Englishcombe! By the Cam Brook near Dunkerton. Combe Hay. Ascent to Hampton Down from Bathampton! On the canal bank and in other moist places; *Fl. Bathon*.

**1015. *C. Leersii* F. Schultz. *C. muricata* VAR. *pseudo-divulsa* Syme.**

Native; on dry banks and woodland slopes; rare. June and July.

**G.** Base of railway embankment under Sneyd Park, 1899. A specimen in *Herb. Cundall* labelled "Below Cook's Folly, June, 1849," shows that the plant grew there long before the railway was constructed. On a small broom-covered common near Leap Bridge beyond Downend, 1898! This common is now bare, the brush-wood and broom having been cleared away, and the sedge is often grazed by cattle before it can flower. In the lane ascending from the town of Wotton to the Hill! Frequent about the wooded hills between Dursley and Wotton-under-Edge; 1898, etc.

Extract from the original description translated by the Rev. E. S. Marshall (*Journ. Bot.* 1898, p. 75). "*C. Leersii* . . . differs from *C. contigua* Hoppe *inter alia* by the glume, which is broader than long (in *C. contigua* it is longer than broad), by the lowest bract, which is linear-lanceolate (in *contigua* it is ovate), by the shorter, broadly ovate perigynia, narrowed into a short beak (in *C. contigua* they are longer, and narrowed into a longer beak), and by the nut being sessile on the base of the perigynium (in *C. contigua* it is placed far above the base)."

The above distinctions hold good with the Bristol plant, which is quite typical. I have had it in cultivation ten or twelve years. The fruit of *Leersii* is smaller than that of *contigua*. Pfarrer G. Kükenthal, the supreme authority on sedges, considers them to be distinct species.

**1016. *C. divulsa* Stokes. *Grey Sedge*.**

Native; in moist shady places, rather common.

May to July.

**G.** Durdham Down, in a grassy hollow (old quarrying) near the top of Paddywell Lane. In several places about Combe Dingle. Shirehampton. Thornbury. Upton Cheyney; *Miss Roper*. Plentiful about Charfield and Damery Bridge. Tortworth. Wotton-under-Edge.

**S.** For some yards in a damp spot on Rownham Hill. Leigh Woods. Lane below Providence, Long Ashton; *Miss Roper*. By the Tan-pits, and on Failand Farm, 1881, etc. Easton-in-Gordano; *D. Williams*. Charlton Woods. Hollow lanes above Portishead. The Big Wood, Weston-in-Gordano. Clevedon. Whitchurch, frequent. Norton Malreward. Keynsham. Roadside

between Publow and Woollard, and between the latter hamlet and Ursleigh Hill. Here of typical character, with the lowest spikelets prolonged into a short branch; *D. Fry*. Chew Magna. Between Cleeve and Yatton. Congresbury. Near Banwell. Hedgebanks by Honey Hall, and towards Churchill. Lanesides near Axbridge, abundant. Great Elm. West Harptree. Plentiful about Wells; *Miss Livett*. Hollow lane south of Englishcombe, and lane by the Cam Brook near Dunkerton. Wet place on Charny Down; *Fl. Bathon*.

Although this was distinguished by Ray so early as 1688, yet from being closely allied to *C. muricata* it did not receive much appreciation as a species from botanists of past generations, and must have been often passed over as a mere variety of the kindred plant. This happened to Babington in his youth; and is the reason, doubtless, why *C. divulsa* is unmentioned by Swete.

**1017. *C. teretiuscula* Good. *C. diandra* Schrank. Lesser Panicked Sedge.**

Native; on boggy peat; very rare.

June.

**G.** [Boiling Well; and Shirehampton Road; *Swete, Fl.* I fear that no reliance can be placed on these records in the absence of vouchers. There is no Bristol specimen in *Herb. Flower*. The plant was not included in Thwaites' list, and is not cited for Gloucestershire in *Topogr. Bot.* or its *Supplement*.]

**S.** Peat moor, Shapwick, 1885; *Broome and Inman* in *Herb. Broome*. Apparently unnoticed by any other botanist until 1906, when it was rediscovered by Miss Peck who kindly conducted me to the place on July 9. At that date the fruit was falling. The sedge grows in a single swampy enclosure on Shapwick Moor; and extends over a large space, perhaps an acre and a half, in company with abundant *C. paniculata* in all its states, and other Carices. The rarer plant, being of low stature and slender growth, is to a certain extent masked by the surrounding vegetation. Specimens submitted by me to the Bot. Exch. Club in 1909 were endorsed:—" *C. diandra* Schrank, forma *tenella* Beckm.—KÜKENTHAL."

I take no account of St. Brody's record for "Weston Hill"—a really impossible locality—nor of Dr. Alexander's "Wood beyond the locks at Combe Hay." Neither has been confirmed. They would almost certainly refer to some other species.

**1018. *C. paniculata* L. Greater Panicked Sedge.**

Native; in bogs and swamps; rare and local.

June and July.

**S.** Marsh under Stone Edge Batch, between Wraxall and Tickenham Hill. Max Bog near Winscombe. Bogs on Mendip, near the Mineries. Ditchbanks below Axbridge; *W. B. Waterfall*. Abundant in large tussocks on both banks of the canal near Camerton and Radford, 1881. But very little there in 1896. About a dozen tussocks in the dune marsh near Berrow, 1897. Now gone? Ditchbanks on the peat two miles south of Wedmore; and very plentiful on the Burtle and Shapwick peat moors. Canal banks at Bathampton and Combe Hay; *Herb. Flower*. Near S. Catherine's, Bath; *L. Blomefield*. Boggy ground near the Rocks; *R. C. Alexander*. Plentiful there in the Oakford valley, 1911.



Weak, late-flowering plants of this species, with small, narrow, nearly simple spikes, are not uncommon on the peat moors; and in an extreme state may be mistaken for *C. elongata* or *C. Boenninghausenia*. They are best placed under VAR. *simplex* Peterm. = VAR. *simplicior* Andersson.

### 1019. *C. axillaris* Good. *Axillary Sedge*.

Native; in hedge-bottoms and marsh ditches; rare. A hybrid between *vulpina* and *remota*. June and July.

**G.** Ditch, Lovers' Lane, Hallen! 1911; *F. Samson*. And Severn Road! *Miss Roper*. Roadside near Folly Brook, between Lyde Green and the Westerleigh Road; and several clumps in a damp grassy lane some 200 yards to the eastward! *C. Bucknall* and *F. Samson*. Still plentiful for 100 yards along a hedge-bottom between Charfield Station and Tortworth Park, near the seventh milestone from Sodbury, where the plant was first noticed by Mr. W. B. Waterfall in 1882. In several spots on the side of the high road a short distance north of Falfield, fine and characteristic, 1896-1908. Nupdown, near Sheperdine, in the Severn flats; several tufts in a roadside ditch, 1910!

**S.** Several tufts in a moor ditch one mile north of Yatton Station, 1900, growing with both parents: looked for in later years but not seen since. Cheddar, 1883; *Mr. Richards*. In Cheddar marshes, 1911! *Mrs. Sandwith*. Marsh at Berrow, sparingly, 1896; *C. Bucknall*. Near Bath; *Mr. Walker* in *Fl. Bathon*. Canal bank, Claverton, Bath; *Herb. Flower*. Bathampton; *Flower* in *Herb. Watson*. One large clump by the canal, Bathampton, 1907; *Miss Peck*. The last four records may well refer to the same spot.

A curious feature of this hybrid deserves attention. While both *vulpina* and *remota* are stiff enough to stand erect until they wither, the much longer stems of *axillaris* are too weak to sustain their heads, and so bend over to the ground until the panicles rest upon and are hidden among the adjacent herbage. In consequence, the hybrid may not be noticed unless closely looked for wherever the parent sedges are seen to be growing together.

Some authors consider that it is *C. muricata*, and not *vulpina*, which has a part in the production of *axillaris*, and certainly there is no reason why this may not be possible. I believe, however, that it is not so here at Bristol, where the hybrid is always found in close proximity to *C. vulpina* rather than to the other. There have appeared to be secondary hybrids on the *remota* side associated with *axillaris* in some instances, but of this I am not sure.

### 1020. *C. remota* L. *Distant-spiked Sedge*.

Native on ditch-sides, hedge-bottoms, and the margins of pools. Common and well distributed, though much more frequently met with in out-lying portions of the district than within the immediate neighbourhood of the city.

May to July.

**G.** Henbury. Between Eastfield and Filton. Stapleton; *Herb. Stephens* and *G. H. K. Thwaites* in *Swete, Fl.* By the Duchess Ponds at Stapleton! Siston Common. Abundant in some parts of the big withy-bed at Bitton, and

by the Boyd higher up its course. Here and there near the Frome at Iron Acton, Frampton Cotterell, Moorend and Winterbourne. Lyde Green and field borders adjacent. Hedge-bottoms and green lane by Folly Brook; and along the road leading from the Westerleigh Road to Pucklechurch. Aust. Thornbury. Littleton-on-Severn. Ditchbanks in the Severn flats at Nupdown, Sheperdine and Hill. Chipping Sodbury. Horton. Charfield Mills. Plentiful near Berkeley, Falfield and Tortworth.

**S.** Swamp on the skirt of Leigh Wood. Markham Bottom. Field hedges near the Tan-pits at Lower Failand. Portbury. St. Anne's Wood, Brislington. Bishopsworth. The Wild Country towards Barrow Gurney. Queen Charlton. Between Stanton Drew and Clutton. Hallatrow. Nailsea and Tickenham Moors, and between Yatton and Clevedon. Wrington. Churchill. Hedge-rows, ditchbanks and boggy ground in the Lox Yeo valley below Winscombe. Easton, Bishop's Wood, and Knowle near Wells; *Miss Livett*. Whatley. Asham Woods. The Oakford valley, St. Catherine's, Bath. Frequent in moist shady places; *Fl. Bathon*.

**1021. *C. echinata* Murr. *C. stellulata* Good. Little Prickly Sedge.**

Native; in bogs and swamps; frequent.

May to July.

**G.** Shirehampton; *Herb. Stephens*. Stapleton; *Swete, Fl.* Boggy spots about Mangotsfield. Swamp below Siston Common. By the Frome near Winterbourne and Frenchay. Rushy meadows near Lyde Green and the Folly Brook. Yate Common. Near Hall End. Inglestone Common. Charfield and Damery Bridge. Wickwar. Alderley. Abson.

**S.** Abundant on the swampy margin of the stream running by the Tan-pits from Failand Farm to Markham Bottom. Marsh near Portbury Church; *Miss Lucas*. Upper Knowle. Norton Malreward. By the Chew above Publow Church. Near the reservoirs at Barrow Gurney. Marshes below Wraxall towards Tickenham. Yatton. Walton and Clapton Moors. Peaty fields below Winscombe. Shipham Bottom. Bogs on Mendip about Blackdown and the Mineries. Stratton Common, Edford. Downhead Common. Near Wells. Common on the peat moors. Bogs near St. Catherine's, Bath; *Rev. L. Blomefield*. Claverton; *Dr. Davis* in *Fl. Bathon*.

[*C. curta* Good. *C. canescens* L.

**G.** "Blaise Castle Woods, G. Mr. J. Foster."—*Swete, Fl.* p. 85. I know nothing respecting this.

**S.** "Old turf pits about Burtle Moor; *Sole*. Not confirmed since."—*Fl. Som.*]

**1022. *C. leporina* L. *C. ovalis* Good. Oval-spiked Sedge.**

Native; in coarse, ill-drained pastures and peaty ground; frequent.

June and July.

**G.** Formerly on Durdham Down and at Stapleton; *G. H. K. Thwaites* in *Swete, Fl.* Near the Duchess Ponds; 1882; *W. E. Green*. Siston Common. Near Pucklechurch. Yate Common. Abundant amongst rushes on Lyde Green and in adjacent meadows. By the Leechpool, north of Yate. Tortworth. Wickwar. Berkeley.



**S.** Upper Knowle, 1883; *Rev. W. H. Painter*. Woodland swamp and marsh in the Old Park near Abbotsleigh. By the streams that rise at Lower Failand. Walton Drove, near Clevedon. Wrington. Blagdon. In much of the damp moorland pasture on the Mendips. In the Lox Yeo valley near Loxton and Christon. Between Worle and Hutton. South Brent. Wedmore. The Watchetts near Wells; *Miss Livett*. On the peat moors, not plentiful. Downside Common, Edford. St. Catherine's, near Bath; *Rev. L. Blomefield*.

**1023. *C. elata* Allioni.** *C. stricta* Good. *C. cæspitosa* Gay. *Tufted Sedge*. Native; in a swamp; very rare. May and June.

**S.** About some water-holes (spring heads) in a marsh under the high ground between Wraxall and Tickenham. Discovered by Mr. C. Bucknall and the writer in 1908, and approved by Messrs. Bennett, Linton and Marshall.

A most welcome discovery, as it added a new species to the flora of Somerset. Previously the only evidence tending to connect this much misunderstood plant with the county or with our district rested on some unconfirmed reports of its occurrence in the vicinity of Bath, which the author of the *Flora of Somerset* declined to accept.

*C. elata* appears to have been always a little difficult to recognize and understand, from its bearing some resemblance to *C. acuta* and *C. Goodenovii*. It is best distinguished by the large tussocks which it forms when free to do so on the edge of a pool; by the shining leaf-sheaths at the base of the stems being split and filamentous on the margins; and by the fruit close-ranked in about eight regular rows. It is the delicate edge of the upper part of the sheaths that becomes filamentous, as stated by Hooker in the *Student's Flora*—a better definition than that given by Babington. When dispersed among the rank vegetation of a swamp the cæspitose character is not so conspicuous. The leaves have recurved (revolute) edges, especially when dry, while those of *Goodenovii* are involute. Mr. A. Bennett remarks:—"Herr Kükenthal, in his monograph of *Carex* in 'Das Pflanzenreich,' uses my name (*C. Hudsonii*) because of the uncertainty of Allioni's *elata* being *stricta* or *acuta*, and there is no specimen known to be extant of Allioni's plant."

Mr. D. Williams believes that *C. elata* grew formerly (1886, etc.) at Failand about a spring, in some ground that has latterly been drained. Unfortunately his specimens are too small and immature for determination.

**1024. *C. acuta* L.** *Slender-spiked Sedge*.

Native; on the sides of rivers and ditches; rare.

June.

**G.** By the Avon above Hanham, close to the Ferry, 1896 and subsequently! *D. Fry*. Abundant by the Boyd in its upper waters between Pucklechurch and Hinton.

**S.** Boggy ground on the Failand Hill House property, now drained; *D. Williams*. For twenty yards or so by the Avon near Keynsham Bridge, 1894! *D. Fry*. Boundary ditch of the withy-bed above Saltford Station, abundant at one time, but of late the ditch has been much drier! By the Avon at intervals above Kelston Weir! Damp meadow by the Chew a short distance

above Compton Dando, 1894, etc. ! *C. Bucknall* and *D. Fry*. Warleigh Ferry, and elsewhere on the Avon ; *Fl. Bathon. Suppl.* Sparingly at Warleigh Ferry, 1887 ; *D. Fry*. Claverton Ferry, near Bath, 1888 ; *A. E. Burr*.

On the banks of the Boyd this sedge is densely caespitose, with narrow foliage, long bracts, and long tapering glumes. The upper fertile spikes have a few male flowers at the top. On receipt of an example Mr. C. E. Salmon pointed out that it matches the var. *prolixa* Fries (See *Andersson, Cyperac. Scandinav.* 1849).

**1025. *C. Goodenovii* Gay. *C. vulgaris* Fries. Common Sedge.**

Native ; in marshes and wet places ; frequent.

May and June.

**G.** Marsh near Baptist Mills. Boiling Well ; *Sweet, Fl.* Filton Meads, plentiful. Boggy meadows in Hallen Marsh. Ditches by the Cattybrook Works. Charlton. Stoke Gifford, towards Northwoods. Between Patchway and Almondsbury. Gaunt's Earthcott. St. Anne's Well, near Siston ; *Misses Cundall*. Lyde Green. Pucklechurch. Yate Common. Wickwar. Charfield Mills.

**S.** Bedminster Meads. Damp ground under Dundry Hill near the reservoirs, and in the Wild Country. By the Chew near Pensford. By a stream at Lower Failand, and in a boggy field on the higher ground. Nailsea Moor. Lowland marshes under Wraxall and Tickenham Hills. Tickenham and Kenn Moors, towards Clevedon. Stanton Prior ; *D. Fry*. Marshy enclosures below Cheddar and Draycott ; about Wedmore ; and throughout the peat moors. Blackdown on Mendip. Priddy Nine Barrows. Between Weston-super-Mare and Hutton. Radford. Timsbury. Boggy meadow N.W. of Churchill. Lower side of Stratton Common, Edford. By the canal at Combe Hay ; *D. Fry*. Marsh below Woolley Wood ; *Dr. Gibbes* in *Fl. Bathon*.

**1026. *C. pallescens* L. Pale Sedge.**

Native ; in damp woods and pastures ; rare.

May and June.

**G.** Copse between Horfield and Filton ; *Dr. H. O. Stephens*. Berwick Wood near Henbury, 1883.

**S.** Sparingly in a marshy pasture under the western slope of Dundry Hill, May, 1880. One or two plants in an open glade of Leigh Wood, 1885 ; *E. Wheeler*. Marshy spots about Lower Failand, in several places ! *D. Williams*. Marsh by the Chew near Pensford, 1896 ! *L. W. Rogers*. In the Chew valley by Tucking Mills ; *D. Fry*. Marksbury ; *S. D. Fry*. Limeridge Wood, Tickenham, 1907. Peaty meadows in the Lox Yeo valley near Max Mills, 1882 ; *W. E. Green*, and still there in 1905. Woods, Axbridge, 1850 ; *Herb. Flower*. Combe near Yatton ; *G. H. K. Thwaites* in *Herb. Watson*. Stratton Common ; *Fl. Som.* Near Wells ; *Rev. E. S. Marshall*.

**1027. *C. panicea* L. Pink-leaved Sedge.**

Native ; in meadows and marshes, and likewise on limestone hills. Common and well distributed.

May and June.



**G.** Plentiful in the Black Rock Gully and in two or three other spots on Clifton and Durdham Downs (limestone). By the Boiling Well under Ashley Hill. Horfield; *G. H. K. Thwaites* in *Swete, Fl.* Filton Meads. Charlton. Hallen Marsh. Rodway Hill and Siston Common, near Mangotsfield. Pucklechurch. Alveston. Thornbury. Yate Common. Sodbury Common. Itchington Moor. Hawkesbury. Wickwar. Charfield. Cromhall.

**S.** Amongst heath and long grass on Leigh Down (limestone). Bedminster Meads. Boggy field, Upper Failand. Lower Failand, near the Tan-pits. Meadows under the western slope of Dundry Hill. Barrow Gurney. Between Stanton Drew and Knowl Hill; *D. Fry*. By the Land Yeo stream near Nailsea. Yatton and Tickenham Moors. Marshes in the Walton Valley between Portishead and Clevedon. Congresbury. Hillside above Featherbed Lane, towards Clutton. The Harptrees. Litton. Meadows near Max Mills, Winscombe. Common about Blackdown, the Mineries, and elsewhere on Mendip. Near Wells. Common on the peat moors of Aller, Burtle, Shapwick, etc.

Mr. S. Gibson (*Phytol.* I, p. 462) mentions a curious monstrosity of *C. panicea* met with at Bristol in 1842. It had double perigynia, the second or upper one with its peduncle passing through the orifice in the lower one.

[*C. limosa* L.

"Peat bog on Mendip Hills."—*Swayne* in *Withering*, ed. 3, p. 104 (1796). Unconfirmed.]

### 1028. *C. strigosa* Huds. *Loose-spiked Wood Sedge.*

Native; in hedge-bottoms and quags in shady places; rather rare, or sometimes confused with *C. sylvatica*.

May and June.

**G.** Combe Dingle, 1909! *Mrs. E. P. Sandwith*. Llewellyn's Wood, Westbury-on-Trym; *Dr. H. O. Stephens*. Lanewood and Shortwood, near Pucklechurch; *Swayne* in *Withering*. Along a cart track at the foot of Folly Wood, Dursley.

**S.** Plentiful in a damp wood between Norton Malreward and Stanton Drew. Abundant in woods on the left bank of the Chew near Compton Dando. Sparingly in Featherbed Lane between Stanton Wick and Clutton, and in a damp hedgerow below an adjoining wood; *D. Fry*. Lord's Wood, Houndstreet, 1896; *Id.* Wood between Tucking Mill and Marksbury; *Id.* Wraxall; *Dr. H. O. Stephens*. For some yards along a hedge-bottom in a lane between Cleeve and Yatton! first reported by *Miss Winter*. Banks of the brook, Nailsea; *Herb. Stephens*. By a stream near Cheddar, 1911! *Mrs. Sandwith*. Bishop's Wood, Wells, 1883; *Rev. E. S. Marshall*. Englishcombe; *Herb. Watson*. Woods at Charlcombe and Claverton; *Dr. Davis* in *Fl. Bathon*. Near Batheaston, 1854; *Herb. Jenyns*. Moist woods, Langridge Bottom; *Rev. L. Blomefield*.

### 1029. *C. pendula* Huds. *Great Pendulous Sedge.*

Native; in moist clayey woods and on hedgebanks above water; common. Especially partial to the Lias. The largest European *Carex*. May and June.

**G.** By the Trym below Westbury. Near Baptist Mills and the Boiling Well; *Swete, Fl.* and *W. E. Green*. Still there in 1902. Glen Frome. Abundant about Berwick Wood and Haw Wood near Hallen. Frequent on the lower grounds between Almondsbury, Over, and Compton Greenfield. Ditchbanks south of the old church, Alveston. In roadside ditches, etc. between Henbury and Cribb's Causeway. Westerleigh, and between Wapley and Pucklechurch in several places. Unusually plentiful about Hillsley, Kingswood and Charfield. Tortworth. Abundant near Berkeley.

**S.** Leigh Woods. St. John's Lane and Lock's Mills, Bedminster. Long Ashton. Bishopsworth, and several other places under Dundry Hill. A few clumps at Lower Failand; *Miss Agnes Fry*. Very fine and frequent in the neighbourhood of Brislington, Stockwood, Whitechurch, Keynsham, Norton Malreward and Compton Dando. Wrington. Yatton. Max Mills, Winscombe; *W. B. Waterfall*. Lanesides in the Cheddar Valley. Paul Wood near Temple Cloud. Farrington Gurney. Between Hinton Blewett and Coley. Rushfield Hill, etc. near Ston Easton. Border of streams near Wells; *Miss Livett*. Canal bank, etc. Monckton Combe; *D. Fry*. Damp places, woods, and banks of the canal, frequent; *Fl. Bathon*.

**1030. *C. humilis* Leyss. *C. clandestina* Good. Dwarf Silvery Sedge.**

Native; on downs and limestone hills, very rare and local. It is seldom found in level turf, but prefers steep, rocky banks and the edges of old excavations. March and April.

**G.** St. Vincent's Rocks, and Clifton and Durdham Downs, abundant along the Avonside portions from the Black Rock southward. In less quantity above the Suspension Bridge, scattered on slopes towards the Zigzag; and sparingly between the Zigzag and Ghyston House opposite Sion Hill.

**S.** Rocky slopes by the Avon under Leigh Woods, only where the ground has remained undisturbed by quarrying. It occurs at intervals in open turf from near the riverside to the wood margin. Plentiful on the south side of Brean Down, where it appears to have been first noticed in 1841 by the Rev. Thos. Butler.—*Phytol.* I, p. 299. Hampton Down near Bath! *Miss Peck*.

First British record:—"In rupe Sancti Vincentii dicta, prope Bristol, D. Sole."—*Trans. Linn. Soc.* ii, p. 167 (1792). But Mr. Druce tells me he has evidence that George Don was at Bristol and got *C. humilis* in 1787.

The figure in *Engl. Bot.* was drawn from specimens gathered on "St. Vincent's Rocks by the footpath leading from Clifton to the Hot Wells, in a very sunny spot, by Edw. Forster Esq., 4 April, 1809."

On Brean Down the bright dark green foliage of *C. humilis* is very conspicuous in late summer at times of drought, when the rabbits have eaten off every blade of grass. They do not touch the sedge.

**1031. *C. digitata* L. Fingered Sedge.**

Native; in a wood and thickets on limestone, confined to a very small area. April and May.



**G.** Amid underwood above the Bridge Valley Road, Clifton Down, for the most part closely concealed in long grass beneath the bushes, and needing sharp eyes to detect it. In the Black Rock Gully I have seen about a dozen plants on the southern slope; some of them in shade and some exposed in the open.

**S.** Mossy ledges and recesses on precipices in Leigh Wood, where the rock is damp and shaded. The plant extends about a quarter of a mile and is more plentiful and more luxuriant than on the Gloucestershire slopes opposite. Friary Wood, Hinton Abbey; *Sole*. In Hinton Wood; *Dr. Davis* in *Fl. Bathon*.

First British record.—“Prope Bath, D. Sole.”—*Huds. Fl. Angl.* ii, p. 409 (1778).

Fresh specimens that grew “profusely among bushes under St. Vincent’s Rocks on the south [Leigh] side of the river,” were sent by W. Clayfield to Sir J. E. Smith in May, 1799, for the figure in *Engl. Bot*.

*Sole* would have got it either at Hinton Abbey, or at Colerne Park, a well-known habitat in Wilts, mentioned in *Fl. Bathon*. It is unlikely that the plant was ever more abundant near Bristol than it is at present. J. E. Bowman, in *New Bot. Guide* (1835) says:—“Rocks below Bristol, near *Arabis stricta*, but very sparingly.”

### 1032. *C. verna* Chaix. *C. præcox* Jacq. *Vernal Sedge*.

Native; on downs, dry banks and pastures; common and generally distributed. It grows abundantly on Clifton and Durdham Downs, Combe Down, Kingsweston Down, etc.; but although so frequent this species is often overlooked. It easily escapes notice so soon as the stamens are withered. In marshy fields tall specimens are sometimes found that, in habit, resemble the next species.

April and May.

### 1033. *C. pilulifera* L. *Round-headed Sedge*.

Native; on downs, heaths and commons, usually on high ground. Probably more frequent than this record shows. It often grows on the edges of thickets and furze patches where the decumbent, wiry stalks are hidden among tall herbage.

May and June.

**G.** Clifton and Durdham Downs, growing chiefly in the furzy spots among coarse grasses. Yate Common; *Herb. Flower*. Blaize Castle Woods; *Herb. Powell*.

**S.** Lord’s Wood, Houndstreet; *D. Fry*. Failand; *D. Williams*. Strawberry Hill, Clevedon, in tolerable abundance! 1886–96; *Mrs. Lainson*. Slope of Blackdown towards Shipham, in plenty, 1904. Churchill Batch; *Fl. Som*. Downhead Common. Near Wells; *Miss Livett*. The peat moors! *Mrs. Gregory*.

### 1034. *C. montana* L. *Mountain Sedge*.

Native; on upland grassy slopes; very rare.

April to June.

**S.** In plenty on a sunny slope by the track leading from Charterhouse-on-Mendip to Cheddar Gorge. Discovered by the Rev. E. F. Linton in 1890 (*Journ. Bot.* xxviii, p. 350). The sedge extends in patches about 150 yards along the hillside, its bright, pale green foliage being very conspicuous, but whenever I have seen it not more than one quarter of the plants have been in flower. In 1908 Mr. F. Samson found it at another spot in the same neighbourhood. There is no other station for the species in the county. "Rocks opposite Hotwells":—*Sole* in *Collinson's Hist. Somerset* (1791). We have no other record from the Avon valley, and although respect should be had for *Sole's* authority it must be supposed that some mistake was made on this occasion.

**1035. C. flacca** Schreb. *C. glauca* Scop. *C. recurva* Huds. *Glaucous Heath Sedge. Carnation Grass.*

Native; in meadows and pastures, on downs and about rocks. Very common and universally distributed. May to July.

Certainly the commonest species of the genus in these parts, and remarkable for its occurrence in all kinds of soils and places, wet or dry. In stature and facies it varies considerably, so much so that the young student before getting a firm grasp of characters will probably gather it many times in the belief that he has met with something new. The pink-hued fertile spikes do not always droop prettily on slender stalks to contrast their colours with the blue glaucous foliage; but are occasionally shorter and stouter with a more erect carriage.

**1036. C. flava** L. *Yellow Sedge.*

Native; in marshes and boggy places—spots that are flooded in winter and become comparatively dry in summer. As an aggregate, rather common but local. May to July.

**G.** Formerly on Durdham Down, and at Shirehampton; *Stephens and Thwaites* in *Suete, Fl.* Swampy ground below Rodway Hill and on Siston Common (VAR. *minor* Townsend). Yate Common (*eu-flava* with VARS. *elatior* and *minor*). The Kilcot valley near Hillsley (*eu-flava*).

**S.** Lower Failand, on the swampy margin of streams (VARS. *minor* and *elatior*, fide *D. Fry*). Damp fields under Dundry Hill. Moors at Clapton-, Weston- and Walton-in-Gordano. Shipham Bottom, Blackdown; and the Mineries on Mendip (all these VAR. *minor*). Peaty meadows near Max Mills, Winscombe (*eu-flava* and ? VAR. *C. lepidocarpa* Tausch). Bog under Lansdown; *D. Fry* (*eu-flava* and VAR. *elatior*, fide *A. Bennett*). The Watchetts, near Wells; *Miss Livett*. Peat moors in the south ("subdominant and abundant;" *C. E. Moss*). In boggy places, frequent; *Fl. Bathon*.

The forms of this aggregate are (to me) variable and difficult to separate, and their nomenclature is involved and puzzling. Many pages have been written and printed about them in the attempt to make things clear; but plants will always be found that can be only doubtfully referred to either of the named varieties.

Our common form is the VAR. *minor* Towns. = *ædocarpa* Andersson = *C. Oederi* Liljebr. of *Fl. Som.*, with stem equalling the leaves or even shorter;



fruit with a straight beak or but little deflexed; and female spikes usually distant. The type (*eu-flava*) is very scarce, and *C. lepidocarpa* Tausch, to which we formerly placed the bulk of our plants, proves to be more frequent in North Britain than it is in the West. A plant labelled *lepidocarpa* from a lower slope of Dundry Hill was agreed to by Mr. Briggs; but on another specimen from Max meadows Mr. A. Bennett commented as follows. "Tausch insists on the scabrous stems 'culmo subfiliformi scabro'; (*C. flava* = 'culmo lævi'). Your specimen has the smooth stem of *flava*, with the long, exserted male spike of *lepidocarpa*. The bracts, however, are not of *flava genuina* which exceed the male spike. It is clearly a *flava* form, not an *Oederi* one, and if we keep to Tausch's own description not *his lepidocarpa*. I can find no name to exactly fit it, but might suggest the *remotiuscula* Schur. (*Enum. pl. Transsylvan.* p. 710, 1866)."

**1037. *C. Oederi* Retz. var. *cyperoides* Marsson. = *C. chrysites* Link.**

**S.** Swampy enclosures on Shapwick peat moor, fairly plentiful.

May to July.

This is distinct enough from the *eu-flava* segregates, with its smaller spikes of numerous small fruit and long bracts. On the peat moor it runs up to 15 inches in height—far taller than described by Marsson—and has a curious resemblance to *C. extensa*, from which of course it should be readily distinguished by the shape of the fruit and its rough-edged beak. I have known our plant to be confused with *extensa*. One such misnamed specimen was forwarded to Mr. Bennett, who said:—"No, it is not that, but the often talked about form of *Oederi* which has caused so much confusion in our lists. In his *Flora von Neu-vorpommern*, Marsson describes this plant. 'Caule 2-6 poll. foliis latis planis plerumque curvatis, cum foliis invol. caulem multo superantibus; spiculis oblongis 4-6 dense capitato-aggregatis basi saepe ramosis.' It certainly simulates *extensa* very strongly."

**1038. *C. extensa* Good. Long-bracteated Sedge.**

Native; in marshes by the sea; very rare.

June and July.

**S.** Weston-super-Mare, 1842; *Herb. Stephens.* Ibid.; *Herb. Flower.* Brean, 1883; *Rev. R. P. Murray.* Dune marsh on the coast near Berrow, 1880—1906. Possibly now gone, the marsh having been drained.

**1039. *C. Hornschuchiana* Hoppe. *C. julva* Host.**

*C. speirostachya* Sm. Tawny Sedge.

Native; in damp peaty and boggy pastures; rare.

May and June.

**G.** Open drives in the Bishop's Hill Wood, Wickwar.

**S.** Peaty ground between Clapton- and Weston-in-Gordano, 1898; when I first detected it in the district. Max meadows, Winscombe, 1900. Blackdown on Mendip, abundant near the summit. Stratton Common; *Fl. Som.* Claverton Wood, and in a bog near Weston, Bath, towards the Lansdown racestand; *Dr. Alexander* in *Fl. Bathon. Suppl.* The peat moors between Edington Road and Shapwick Station.

I have gathered on Blackdown the hybrid between this species and *C. flava* (*C. xanthocarpa* Degl.); and Mr. Bucknall had it on Shapwick Moor several years ago.

**1040. *C. distans* L.** *Loose or Distant-spiked Sedge.*

Native; in marshes, wet meadows, and damp rushy ground by the estuaries; rather common. It often occurs inland, and there attains a greater size than on the coast. May and June.

**G.** Abundant in the riverside meadowland below Sneyd Park. Baptist Mills, and damp pasture skirting the Boiling Well. Kingsweston; *Swete, Fl. Horfield*; *G. H. K. Thwaites* in *Swete*. Formerly plentiful in Filton Meads, now scarce. Abundant in the boggy meadows of Hallen Marsh, and towards Lawrence Weston. By Yate Rocks. Near Chipping Sodbury. New Passage, 1865; *Herb. St. Brody*. Itchington Moor. Ingst. Frequent in the Severn flats from Berkeley southward.

**S.** Bedminster Meads. Failand! *D. Williams*. Barrow Gurney. Chew Magna. By the Chew near Compton Dando; *D. Fry*. Kelston Round Hill; *Id.* In a salt-marsh behind the esplanade at Portishead, 1907. Along the coast line from Portishead to Clevedon, on moist turf and rock-ledges of the low cliff. Walton-in-Gordano. Marshy lowland below Wraxall and Tickenham Hills, and on Nailsea and Yatton Moors. Meadows and bog near Max, Winscombe. Boggy pasture N.W. of Churchill, to over three feet high. Great Elm, in mowing grass. Uphill. Salt-marsh near Berrow Church, 1892. Highbridge. Some large tufts in a coarse swampy pasture off the Shapwick Road, 1906. Probably rare on the peat-moor formation, as it was not noted thence by Dr. C. E. Moss in his ecological work on N. Somerset. On the canal bank; *Fl. Bathon*. Fortnight and Combe Hay; *Miss Roper*.

There is a certain amount of variation with *C. distans*. The coast plant is as a rule much smaller than that growing far from the sea, and there are some slight structural differences between the two. Miss Livett has drawn my attention to specimens from the Channel shore near Clevedon which have the short beak of the fruit very nearly smooth. Such plants may be confused with *C. punctata*, a sedge which has been reported to me in error more than once. A very luxuriant inland form, on the other hand, was confidently submitted as *C. lavigata* with the approval of a practised botanist, who subsequently owned to having been sleepy when he passed it!

A plant with abnormally narrow leaves and narrow spikelets, from wet sand north of Berrow, gathered by the Rev. E. S. Marshall in 1906, was submitted to Herr Pfarrer Kükenthal and assigned by him to "forma *sinaica* Nees."

**1041. *C. binervis* Sm.** *Green-ribbed Sedge.*

Native; on commons and moorland; rather rare and local. June and July.

**G.** Blaize Castle Wood; *J. Foster* in *Swete, Fl.* The Boiling Well, and Horfield; *Herb. Stephens*. Yate Common. At the present time we know it only at the last-mentioned locality.



**S.** Ladye Bay, Clevedon, July, 1860; *Herb. Flower*. Max bogs, Winscombe, 1904; *Miss Livett*. Downhead Common. Abundant on Blackdown, and at the Mineries on Mendip, ascending to 1000 feet. Near Sham Castle, Bath; *Fl. Bathon*. "Bogs about Bath, June, 1862;" *Herb. Flower*.

[*C. lævigata* Sm. Has not yet been detected, but is likely enough to be present in the district. It is, however, a well-proved calcifuge, and should be looked for in damp woods on the Old Red Sandstone and on the Coal Measures. Dr. Moss tells me he knows it on Greensand hills to the east or south-east of Frome; and I learn that it is common in West Somerset and on the Dorset border, though very rare in Wilts.]

**1042. *C. depauperata* With. *C. helodes* Link. *C. ventricosa* Curt.**  
*Starved Wood Sedge*.

Native; in dry woods; very rare.

May to July.

**S.** Leigh Woods, 1886; *Harold S. Thompson*. The single immature specimen that was gathered was put aside for some years before its importance was recognized. By that time Mr. Thompson could not remember in which part of the Woods he had found it. Mr. A. Bennett confirmed the naming, and when the finder kindly forwarded the plant for my inspection I believed it to be right.

"Wood between Axbridge and Cheddar, June, 1860;" *Herb. Flower* (4 sheets). Wood near Axbridge; *Norman* in *Herb. Watson*. Specimens from the same locality are in the British Museum, contributed by Flower, who said that the station had been destroyed. Repeated search in likely places proved fruitless, and as no one appeared to have seen the plant during the fifty years that had intervened since Flower distributed it, it seemed that his report must be correct. Happily, however, it was not so. *C. depauperata* was rediscovered in May, 1911, by Mr. H. W. Pugsley, at a place which answers very well to the old descriptions of the locality. On my visit, early in June, the sedge extended thinly along a grassy bank at least 100 yards. The stems do not overtop the surrounding herbage, and so are in great part well concealed.

This is one of the very scarcest species in the British flora. There are only two other counties in which it has been known to occur. At the original station in Kent it has become extinct, and but a very little is left in Surrey. Our N. Somerset station, therefore, is the most important in the kingdom. I am told that when cultivated the roots do not spread, but remain unincreased for years.

**1043. *C. sylvatica* Huds. *Pendulous Wood Sedge*.**

Native; in woods; common throughout the district.

May and June.

**1044. *C. Pseudo-cyperus* L. *Cyperus-like Sedge*.**

Native; on the margins of pools and ditches, mostly on peat. Frequent in the southern portion of the district; very rare in the northern. June and July.

**G.** Winterbourne; *S. Freeman* in *Phytol.* I, p. 328 (1841). Plentiful around a quarry pool between Yate and Westerleigh, 1905! *Misses Cundall*.

**S.** In many places in the lowlands from Yatton to Kenn and Tickenham Moors. Plentiful on Walton and Weston Moors near Clevedon. Ditches by

the village of Congresbury. Ponside, Woodborough; and Sideot; *W. B. Waterfall*. The Watchetts, near Wells; *Miss Livett*. Ditchbanks south of Wedmore towards the peat moors, where this sedge becomes extremely common.

**1045. *C. filiformis* L.** *Slender-leaved Sedge.*

Native; in peat ditches; very rare.

May and June.

[*G.* Shortwood, near Pucklechurch; *Swayne* in *Withering*, ed. 3 (1796). Unconfirmed.]

*S.* "It grows plentifully towards the eastern end of the moor, about two miles N.W. of Sharpham Park, 1856;" *T. Clark*. "Turf moor, by a fir plantation of cousin Jas. Clark's, near the eastern end of the moor, 1857;" *Id.* The sheets in Mr. Clark's collection are dated 1855, 1857 and 1859. The Rev. R. P. Murray found it many years later between Ashcot Station and Sharpham Park.

**1046. *C. hirta* L.** *Hammer Sedge.*

Native; in wet and poor pastures; common.

May and June.

*G.* Baptist Mills and the Boiling Well. Glen Frome, below Stapleton. Abundant in the boggy fields between Hallen and Lawrence Weston. Filton Meads. Charlton. Patchway. Alveston. Moist meadows along the course of the Frome, from Yate downwards. Lyde Green, and adjacent rushy meadows, plentiful. Near Chipping Sodbury, Horton and Hillsley. Itchington Moor near Tytherington. By the Little Avon near Charfield. Tortworth. Cromhall. Falfield. Below Wotton-under-Edge, towards Kingswood.

*S.* Lower Failand, abundant. Crox Top, Bishopsworth. By rivulets below Dundry Hill. Plentiful in wet rushy fields near Barrow Gurney. The lowlands about Nailsea, Kenn, Tickenham and Clevedon. Clapton Moor, and throughout the Walton Valley. Meadows by the Lox Yeo, Winscombe. Low-lying pastures near Churchill. Lympham. Brean. South Brent. Wells. Charterhouse-on-Mendip; Chilcompton; and Asham Woods; *Fl. Som.* Weston-super-Mare; *St. Brody*. Damp sand near Weston Station; *Miss Roper*. Bog on Charmy Down; *Fl. Bathon*. The peat moors.

The *VAR. hirtæformis* Persoon, with glabrescent leaves and glumes, merges imperceptibly into the type and seems to be of little importance. Miss Roper has shown me a dense mass of it, several sq. yards in extent, on some gravel brought from the Severn to the stone works at Tytherington. A good deal also in the meadows between Kelston Station and the Avon, pointed out to me by Mr. D. Fry. And along the canal-side near Bathampton! *Miss Peck*.

**1047. *C. rostrata* Stokes.** *C. inflata* Hudson. *C. ampullacea* Good. *Bottle Sedge.*

Native; in bogs and marshes; rare.

May to July.

*G.* Pool in the Lake Wood, Pucklechurch; *Swayne* in *Withering*, ed. iii (1796). Not reported in my time.

*S.* Clevedon, 1881; *E. Wheeler*. The locality no doubt was the peat of the Walton Valley, where I saw the plant in 1910. Bogs at the Mineries on Mendip. Abundant on peat moors in the south.



**1048. *C. vesicaria* L. Bladder Sedge.**

Native; in water; very rare.

May and early June.

**G.** Discovered by Miss Roper in May, 1908, by the Frome between Yate and Iron Acton. There is a patch of about three yards in a rivulet only a few feet from its junction with the Frome on the left bank of that river. A find of the greatest interest, as the plant has no other station in West Gloucestershire, and is unknown in the county of Somerset.

**1049. *C. acutiformis* Ehrh. *C. paludosa* Good. Lesser Pond Sedge.**

Native; on the banks of pools, ditches and streams; frequent. It is likely to be more widely distributed than appears by these notes, because we frequently find patches of a non-flowering sedge, apparently this species, which in the absence of fructification cannot be certainly determined.

May and June.

**G.** Marsh at Baptist Mills, 1881-1892. Now filled in and built upon. By the Frome near Stapleton. Lowland ditches north of Henbury; *C. Bucknall*. Hallen Marsh. Ditches between Lawrence Weston and Avonmouth. Very plentiful in a swamp by the Bradley Brook, west of Winterbourne. A large patch in marshy ground at Hartstrow, N.E. of Iron Acton; *C. Bucknall*. Streamside between Alderley and Kingswood; *Miss Roper*. Itchington Moor. Tortworth Park.

**S.** Long Ashton. Flax Bourton, by the Land Yeo stream. Spring by the Portishead Railway, east of Ham Green. Portbury and Upper Failand! *D. Williams*. Abundant in a marsh under the hill between Wraxall and Tickenham. The Walton valley near Clevedon. Yatton. Keynsham; *D. Fry*. Abundant by the Avon above Saltford, chiefly on the right bank, with *C. riparia*! Wet meadow near Churchill. Axbridge; *W. B. Waterfall*. Litton and Hinton Blewett. Gurney Slade; *Fl. Som.* Weston-super-Mare; *St. Brody*. About Wells! *Miss Livett*. Combe Hay, and Monckton Combe; *D. Fry*. Canal banks, Bath; *Herb. Flower*. The Oakford valley, above Batheaston! Common near Bath; *Fl. Bathon*.

A curious form with bifid or forked spikes occurred (1901 and subsequently) in a ditch below Lawrence Weston, G.!

VAR. *spadicea* Roth. = VAR. *Kochiana* Gaud. = VAR. *subulata* Doell.

**G.** Hallen Marsh, near Henbury!

**S.** By a boggy spring-head under the hill between Wraxall and Tickenham. Kenn Moor, abundant; fide *A. Bennett*. Max meadows and bog, Winscombe; typical. Marsh ditches in the Cheddar Valley towards Nyeland, and between Draycott and Wedmore, very fine and characteristic, 1892 to 1911! Canal bank near Bath.

**1050. *C. riparia* Curt. Greater Pond Sedge.**

Native; in marsh ditches and by rivers and streams; common.

May and June

**G.** Baptist Mills and the Boiling Well. Filton Meads. Hallen Marsh. Glen Frome, and at intervals by the Frome in its higher reaches. Marshes on the skirt of Siston Common. Lawrence Weston. Compton Greenfield. Aust. Alveston. Elberton. Ingst. Pucklechurch. Tortworth.

**S.** Bank of Avon under Leigh Wood. Prislinton. Portbury. Long Ashton. Chelvey. Nailsea. Yatton. Moors near Clevedon. Throughout the Cheddar Valley and the peat moors; abundant. Weston-super-Mare. Brean. Very plentiful by the Avon above the tideway, at Keynsham, Saltford, etc., and above Bath.

This is really too widely distributed to render necessary any lists of special localities. Many more could, of course, be added to those mentioned.

*C. riparia* is a conspicuous feature of our riverside vegetation in early summer; often growing with the last species, than which it is normally stronger and stouter.

A small coast form, 12 to 20 inches only, found (1909) by the Rev. E. S. Marshall on damp sand north of Berrow, was named *var. humilis* Uechtr. by Pfarrer G. Kükenthal.

## GRAMINEÆ.

[*Digitaria sanguinalis* Scop. *Panicum sanguinale* L.

An Alien casual of striking appearance. On waste ground; very rare.

**G.** Garden weed at Redland, 1881.

**S.** Old dust-heaps on the river bank below Bath; *S. T. Dunn* in *Journ. Bot.* 1896. Waste ground at Claverton, Bath; whence Miss Martin has sent me specimens and says it comes up year after year. Casual in a Wells garden, 1900; *Miss Livett*.]

[*Echinochloa Crus-galli* Beauv.

Alien casual. On damp waste heaps, mill refuse, etc. A rather frequent introduction.

**G.** On dredgings from the Avon and Floating Harbour, then recently deposited in the Black Rock Quarry, 1883 to 1886; none afterwards. Wapping Wharf, Bristol Harbour, many plants, 1910-11. St. Philip's Marsh, on rubbish, 1894 and subsequently.

**S.** By farm buildings near Portbury, 1902. On sidings and mill refuse in Portishead Station-yard, 1900 to 1908. Casual at Twerton, 1897; *S. T. Dunn*. Dust-heaps on the river bank below Bath, 1896 to 1899. On rubbish at Claverton, 1892; *Miss Martin*. Casual near Bathaston; *Fl. Som.*]

[*Panicum miliaceum* L. *Millet Grass*.

Alien casual. On waste heaps and rubbish with the last, owing its origin to cage-bird refuse, etc. Commonly cultivated in warmer countries and of regular importation.

**G.** Seven or eight plants on dredgings deposited in the Black Rock Quarry, 1883 and 1884. Two there in 1885, but none afterwards. Two plants on a tip in St. Philip's Marsh, 1895. One there in 1906.

**S.** By the G.W.R. sidings at Fox's Wood, 1892. On refuse by the Avon near St. Anne's, Brislington, 1904. By Portishead Dock, 1900 and 1903.]

SETARIA *Pal. de Beauv.*

1051. **S. viridis** Beauv. *Green Bristle Grass*.

Colonist. A weed in cultivated fields, gardens and waste ground; rather rare.

July and August.



**G.** Wapping Wharf, Bristol Harbour, in plenty, 1911. Turnip field by the Avon at Hanham, 1882. In the Black Rock Quarry, 1883 and 1884. Mill on the Frome at Stapleton, 1883. On rubbish in St. Philip's Marsh, 1883, 1890 and several times since. Roadside, Bitton; 1893. Potato field, Dursley, 1902.

**S.** Bank of Avon, Rownham, 1881. On the railway near Paulton, 1881. Embankment of Ashton Avenue, 1906. Portishead Station-yard, 1903 to 1908. Waste ground, Clevedon; *Miss Livett*. Roadside heap, Clapton, 1899! *Miss Roper*. Dust-heaps etc. Bath, frequent; *S. T. Dunn*.

[**S. glauca** Beauv.

Alien casual. Waste ground. Rare.

**G.** Several plants on dredgings in the Black Rock Quarry, 1884. Wapping Wharf, Bristol Harbour, 1911. Avonmouth Docks.

**S.** Station-yard, Portishead, 1904 to 1908. Persistent for some years at Bathampton Station; *Miss Peck*. Bath, 1897; *A. E. Burr*. A garden weed at Wookey Vicarage; *Fl. Som.*]

[**Capriola Dactylon** Adans. *Cynodon Dactylon* Pers.

Alien casual. A few plants on waste ground at Bath, 1896; *S. T. Dunn* in *Journ. Bot.*]

## PHALARIS Linn.

### 1052. *P. canariensis* L. *Canary-grass*.

Alien; on waste ground, roadsides and occasionally in cornfields; frequent. It may always be found on the city rubbish tipped in St. Philip's Marsh, and about the Floating Harbour, in company with other waifs and strays from town and trade. June and July.

[**P. minor** Retz.

Alien casual. Waste ground. Rare.

**G.** St. Philip's Marsh, Bristol; rather plentiful in some years! Fowl run at Baptist Mills 1911! *Miss Roper*.

**S.** Portishead Station-yard, 1907 and 1909.

A smaller and more slender plant than the last, with a longer, narrower inflorescence and a toothed keel to the glumes. It is well distributed throughout Southern Europe and is not uncommon on the west coast of France. There are a figure and a description by Mr. C. R. Andrews in *Journ. Bot.* 1900, p. 33, tab. 406.]

[**P. cylindracea** DC.

Alien casual; occurring sparingly with the last species in the same localities.]

[**P. paradoxa** L.

Alien casual. On waste heaps and mill refuse; very rare.

**G.** On rubbish tipped in St. Philip's Marsh, 1903 to 1908. Waste ground under Ashley Hill, 1911!

**S.** Portishead Station-yard, sparingly, 1908.

A well-established weed of cultivated ground in the Mediterranean region. In Britain never more than a casual straggler, though given a place in all our descriptive manuals on account of its having once occurred near Swanage, many years ago.]

### 1053. *P. arundinacea* L. *Reed-grass*. *Ribbon-grass*.

Native; in and by water; common.

June and July.

**G.** Bank of Avon, from Crew's Hole to Bitton. Hedgebottoms between Redland Green and Horfield. In many places near Westbury-on-Trym, Henbury, Hallen and Lawrence Weston. Charlton. Stoke Gifford. Frequent in the Frome valley from Stapleton upwards. Ditches and hedgebottoms about Northwoods, Earthcott, Lyde Green, Wapley and Westerleigh.

In the Boyd at intervals throughout its course. Wickwar. Charfield. Falfield. Berkeley.

**S.** Ashton Gate, near the iron-works. Lock's Mills, Bedminster. Bank of Avon, plentiful from Bath to Brislington. Along the Land Yeo stream below Gatcombe Court. Nailsea Moor. Stanton Drew. Chew Magna. Portbury. Portishead. Weston- and Walton-in-Gordano. Yatton. Marsh ditches throughout the Cheddar Valley. Honey Hall, Brinsea, etc., near Churchill. Worle. Weston-super-Mare. Croscombe and Knowle, near Wells. Course of the old coal canal at Camerton, Combe Hay etc. Brent. Burnham.

The form having leaves striped with white (var. *picta* L.; var. *variegata* Parnell.), commonly seen in gardens as the dwarf cultivated Ribbon Grass, occasionally becomes established in a semi-wild state.

### ANTHOXANTHUM Linn.

#### 1054. *A. odoratum* L. Sweet-scented Vernal Grass.

Native; in meadows, pastures, open woods and heathy ground. Abundant and of general distribution. One of the commonest grasses. May to July.

### PHLEUM Linn.

#### 1055. *P. arenarium* L. Sand Timothy-grass.

Native; in sheltered spots on the sandy shore of the Bristol Channel; local. May to July.

**G.** Sandy field, New Passage, July, 1866; *Herb. St. Brody*. The only record for the county.

**S.** Kewstoke Bay; and on the sands between Weston-super-Mare and Burnham; but nowhere abundant.

#### [*P. asperum* Jacq.]

"Habitat in pratis infra King's Weston prope Bristolium";—*Huds. Fl. Angl.* ed. 2 (1778), p. 26 (as *P. paniculatum*). A record that has been copied into many books. Mr. Druce has a note that George Don got *P. paniculatum* at Bristol in 1787. Swete, *Fl.* p. 87, says—"Near Kingsweston Inn, 1845, but I have not seen it there since." Mr. Flower wrote in 1854 (*Phytol.* v, p. 79), "I have repeatedly sought for this plant without finding it. Mr. Smith of Shirehampton, who cultivated it for many years in his garden, told me that he had frequently looked over every spot of ground in the neighbourhood where this grass was likely to be met with, for many seasons; and was fully convinced that it is not now found in the locality indicated." In 1860 "A resident Botanist at Clifton" requested any contributor to the pages of the *Phytologist N.S.* to give a direction to the locality for *Phleum asperum* at Kingsweston; but no reply appeared in the pages of that journal.

The specimens found were probably derived from ballast tipped near the Avon below Shirehampton, as would be also the *Trifolium resupinatum* formerly found in that vicinity.

Sir J. E. Smith (*Engl. Flora*, 1824-1828) states that *P. asperum* once grew in Badminton Park. The plant figured in *Engl. Bot.* was from "Curtis's garden."

Mr. H. C. Watson, in the *Cybele*, points out that this species may perhaps have been passed over as *P. arenarium*, and that it might be worth while to carefully examine any alleged inland localities for the latter. But it is now too late to inquire into Mr. Leo H. Grindon's record for *P. arenarium* at Tickenham in 1842 (*Phytol.* I, p. 466.)

#### [*P. Michelii* Allioni.]

Alien casual. A native of Eastern Europe, very rarely met with as a straggler in this country.

**G.** St. Philip's Marsh, Bristol, on rubbish, 1899 to 1906.

**S.** Sparingly in Portishead Station-yard, 1906 and 1907! *Miss Livett*.]



**1056. P. pratense L.** *Timothy-grass.*

Native ; in meadows and pastures, everywhere common. June and July.  
The slightly tuberous form (*P. nodosum* L.) is not infrequent on dry hills ;  
as on Combe Down, Maes Knoll, Uphill, Brean Down, the Mendips, etc.

**ALOPECURUS Linn.****1057. A. pratensis L.** *Fox-tail Grass.*

Native ; in meadows and pastures, very common and abundant on all rich  
land. May and June.

**1058. A. geniculatus L.** *Kneed or Bent-stemmed Fox-tail Grass.*

Native ; in marshes and on the edges of ponds and wet ditches ; well  
distributed. Too common to need particularization of localities.

June to August.

**1059. A. bulbosus Gouan.** *Tuberous Fox-tail Grass.*

Native ; in salt marshes, very local. June and July.

**G.** Pastures by the Avon below Bristol, abundant near Shirehampton  
Ferry. St. Philip's ; *S. Rootsey* (1828). St. Philip's Marsh ; *Dr. Dyer* in  
*Stephens Cat.* (1835). By Netham Dam ; *Swete, Fl.* Near the Aust Passage ;  
*Herb. Lightfoot.*

**S.** Abundant in a salt-marsh by the Avon, a short distance below Pill !  
*Misses Cundall.* Pastures by the Channel between Avonmouth and Portishead.

**1060. A. myosuroides Huds.** *A. agrestis L.* *Slender Fox-tail Grass. Black Grass.*

Colonist ; in cultivated fields and waste places, most often on the Lias  
clays ; rather common. April to July.

**G.** Quarry rubble heaps by the Avon under the Downs. St. Philip's Marsh.  
Between Westbury and Brentry. Stoke Gifford. Cornfields at Lawrence  
Weston. Warmley. Pucklechurch. Wickwar. Codrington.

**S.** Permanent and plentiful in arable land about Bishport. Knowle.  
Whitchurch. Ursleigh Hill. Queen Charlton. Stockwood. Norton Haut-  
ville. Chew Magna. Pensford. Chewton Keynsham. Plentiful near  
Portishead. Worle Hill. Wells. North Stoke. Twerton. Brent Knoll ;  
*D. Fry.* Common about Bath ; *Fl. Bathon.*

**[Echinaria capitata Desf.]**

Alien casual ; due to the grain trade with Eastern Europe. A rare and beautiful grass, only  
once met with in St. Philip's Marsh, 1909.]

**NARDUS Linn.****1061. N. stricta L.** *Mat-grass.*

Native ; on wet heathy ground, undrained commons and elevated moorland ;  
rather rare. June and July.

**G.** Siston Common. Warmley. Yate Common.

**S.** Sparingly on the boggy margin of the stream between the Tan-pits and Failand Farm! Boggy moorland on Blackdown. Frequent near the Mineries on Mendip.

### MILIUM *Linn.*

**1062. M. effusum L.** *Wood Millet Grass.*

Native; in woods and on the shaded banks of deep lanes; rather common. June.

**G.** Between Stoke Bishop and Shirehampton. Combe Dingle. Henbury. Wooded banks in the Frome valley near Stapleton, and in similar spots by that river higher up. Patchway. Almondsbury. Aust. Northwoods, west of Winterbourne; and lanesides towards Coalpit Heath. Iron Acton. Woods in the Boyd valley near Wyck. Woods near Dursley.

**S.** Leigh Woods. Portbury, in the lanes leading up to Failand. Wraxall Hill. Limeridge Wood above Tickenham. Plentiful in the woods at Portishead, and along the ridge towards Clevedon. Stockwood. Barrow Gurney. Maes Knoll. Chew Magna. Featherbed Lane near Clutton, and in a wood between there and Stowey; *D. Fry.* Woods near Compton Dando. Pensford. Wroughton. Congresbury. Compton Martin. Bishop's Wood, Wells. Common in woods; *Fl. Bathon.*

### PHRAGMITES *Adans.*

**1063. P. communis Trin.** *Common Reed.*

Native; in wet ditches, and by the sides of rivers and ponds. Common, especially in those marsh-lands of the district that were anciently brackish or tidal. July and August.

In Sept. 1907 the Rev. E. S. Marshall observed a quantity of what he believed to be the *VAR. nigricans* Gren. & Godr. in a swamp near Worle Station. This variety is described as smaller and more slender than the type, with very black spikelets.

### AMMOPHILA *Host.*

**1064. A. arundinacea Host.** *Psamma* Beauv. *Mat Grass.*  
*Marram.* *Sea Reed.*

Native; in loose sea sand, abundant on the coast of North Somerset.

July and August.

The great importance of the Marram as a means of restraining drifting sands may be recognized among the sand-hills near Berrow and Brean, where it is systematically planted in situations needing its binding agency. Were it not for the influence of this grass in building up efficient barriers against inroads of the sea and the advance of shore sand impelled by the prevailing westerly winds, large tracts of low-lying land, now under cultivation, would be rendered useless. The underground stems are very long and wiry, whilst the leaves are tough and flexible, capable of resisting not only the force of gales but the still more



destructive friction of blasts of flinty sand particles that might wear away the hardest surface if unrenewed. When *Psamma* is buried under a depth of sand by the movement of a dune it steadily grows up to the light again and suffers no injury. The growing shoots with their fine sharp points are well designed to pierce a mass of overlying sand.

### CALAMAGROSTIS *Adans.*

#### 1065. *C. epigeios* Roth. *Wood Small Reed.*

Native; in thickets and moist hedgerows, and on furzy hillsides; rather rare.

July and August.

**G.** Filton Meads, 1846; *G. H. K. Thwaites* in *Herb. Watson* and *Herb. Flower*. Still there in small quantity at two places, 1910. Two or three stems by the railway under Sneyd Park, July, 1906! *C. Wall*. In field hedgerows at several spots about half a mile north of Mangotsfield Station. Plentiful along one side of the big pond at Froglane Pit, Coalpit Heath, 1910. For a few yards on a roadside bank close to the Midland line between Lyde Green and the Parkfield Collieries. Some 200 plants by a streamside at Little Wood, Hawkesbury, 1909; *F. Samson*. Wyck, in damp shade, 1875; *T. B. Flower* in *Herb. Brit. Mus.* Roadside hedge between the Monument and Tracy Park; *Fl. Bathon*. (1834). *Ibid.* 1863; *Herb. Flower*.

**S.** Near Langton Court, Brislington; *Mrs. Russell* in *Herb. Watson*. Cadbury Camp, 1895; *C. Bucknall*. Between Portishead and Clevedon, 1842; *Leo H. Grindon*. Still there on the coast downs a short distance north of Clevedon, 1906! *Capt. Foley*. By the side of the N. Som. Railway between Whitchurch and Pensford. Withy-bed, Keynsham; *D. Fry*. In a long grassy lane leading from Burnet to Compton Dando. Plentiful on a bushy slope above the Chew at Compton Dando. Abundant in a wood and in another spot by Featherbed Lane between Stanton Wick and Clutton; *D. Fry*. A splendid patch on Stantonbury, 1889; *Rev. C. H. Binstead*. Damp wood, Farrington Gurney; *D. Fry*. Coppice wood, Hutton; *St. Brody, Fl. Weston*. Roadside hedges between Winscombe and Banwell, in several spots! Sandford Woods; *H. S. Thompson*. Callow Hill on Mendip, facing Waverling Down! Bleadon Hill; *Rev. E. S. Marshall*. In great abundance at the head of a wooded ravine near the Loxton end of Bleadon Hill; *H. S. Thompson*. Cheddar Wood, 1853; *Herb. Lawrence*, and *J. G. Baker* in *Fl. Som.* Bishop's Wood, Wells; *Miss Livett*. Wood on the edge of Hampton Rocks, near Bathampton! *Miss Peck*. Turf moor near Shapwick Station; *Herb. Clark*.

First record for Somerset:—"Between Farly Castle and Phillips' Norden [Norton St. Philip] in the hedges near the Footpath, July 1726; *Gram. arund.* 2, Syn. p. 401."—*Dillenius' Diary*, p. xlv.

A late-flowering grass, not attaining maturity until near the end of July.

[**C. lanceolata** Roth. *Arundo Calamagrostis* L. *Purple-flowered Small Reed*. Ambiguity.]

**G.** Cited for vice-co. 34 (Gloster West) in *Topogr. Bot.* on the authority of "Thwaites cat." which related to plants seen within ten miles of Bristol. No undoubted specimen from the county, however, can be found. In the Flower Herbarium there is a sheet labelled "*Arundo*

*Calamagrostis* L. Filton Meads, Glouc. Aug. 1846; *G. H. K. Thwaites*. The sheet comprises two plants or stems, closely fastened down. One of these is certainly *C. epigeios*. The other, to which a label in Dr. Thwaites' handwriting is affixed, is doubtful. Mr. Bucknall and I soaked out for examination a few florets from the panicle, and thought that the specimen *might* be *C. lanceolata*; but its condition, saturated with glue, forbade a definite conclusion. Another example of "*Arundo Calamagrostis*" from Filton Meads, undated, in the Stephens Herbarium, although preserved separately from a sheet of *C. epigeios* is clearly the same thing. As stated above, *C. epigeios* has long been known at Filton Meads, but repeated careful search in that locality has not revealed a trace of the other species.

**S.** In hedges between Hinton Abbey and the Church; *Sole* in *Bot. Guide*. Smallecombe Wood; *Dr. Davis* in *Fl. Bathon*. Watson's quotation "Som. North" in *Topogr. Bot.* probably depends on these unconfirmed records published in the *Bath Flora*. He himself remarks that some of his comital records for *C. lanceolata* are too uncertain, through confusion with the last species.

Syme notes (*Engl. Bot.* xi, p. 55) that the earlier British botanists transposed the names of this and *C. epigeios*, from a Linnean error in quoting the synonyms; and such mistakes may well have led to confusion in this district. Until recent evidence of the plant's presence can be obtained, we must regard the available records as too indefinite to support a claim to *C. lanceolata* as a Bristol species.]

#### [**APERA** *Adans.*]

[**A. Spica-venti** *Beauv.* *Spreading Wind-grass.*

Alien casual. On rubbish heaps and waste ground; rare.

June and July.

**G.** On an old colliery waste-heap near Kingswood, 1882 and 1884. St. Philip's Marsh, Bristol, on rubbish, 1888, 1889.

**S.** Two or three plants in a lane near Keynsham, 1898! *D. Fry*. Portishead Station-yard, 1904. Dust-heap, Bath, 1899.]

[**A. interrupta** *Beauv.* *Dense-flowered Wind-grass.*

Alien casual, like the last. Very rare.

**G.** A single plant at St. Philip's, Bristol, in 1904 and 1909. One by the Stapleton Road Gas Works, 1911; *Mrs. Sandwith*.

**S.** One on Portishead sidings, 1907, and one in 1908.]

#### **AGROSTIS** *Linn.*

[**A. setacea** *Curtis*.

Error. I am informed by the Rev. H. J. Riddelsdell that a specimen so labelled in *Herb. Brit. Mus.* from "St. Vincent's Rocks, Clifton, July, 1869; *W. T. Thistleton-Dyer*" proved, on dissection, to be *A. canina*.]

**1066. A. canina** *L.* *Brown Bent-grass.*

Native; on downs and heathy commons; frequent.

July and August.

**G.** Clifton Down. Meadow near the Avon at Lamplighters, Shirehampton. Filton Meads. Rodway Hill and Siston Common. Bank in Glen Frome, Stapleton. Yate Common. Cromhall Common.

**S.** Leigh Down. Upper Knowle. Dundry Hill. Backwell Hill. Pasture on pennant grit between Brislington and Keynsham. Furzy hillside between Stanton Drew and Knowl Hill; *D. Fry*. Downside Common, Edford. Downhead Common, in plenty; *D. Fry*. Crook's Peak; *C. Bucknall*. Weston-super-Mare; *St. Brody*. Blackdown on Mendip. Wells, with the var. *mutica*; *Miss Livett*. In several localities near Bath; *T. B. Flower*.

**1067. A. nigra** *With.* *Black Bent-grass.*

Native; in arable land, the borders of fields and roadsides; rather rare. July.

**G.** St. Philip's, Bristol, 1904 and subsequently. Plentiful in cornfields at Winterbourne, between the village and the church. Cultivated land on Wotton Hill, 1905.



**S.** Laneside, Flax Bourton! *C. Bucknall*. About Saltford; *D. Fry*. Abundant by the Avon at Weston, Bath; and on Lansdown; *J. G. Baker*.

A full description of this grass, with an excellent figure, was published by Mr. J. E. Bagnall in *Journ. Bot.* 1882, p. 65.

**1068. *A. vulgaris* With. Common Bent-grass.**

Native; in open pastures on poor dry soil, and on roadsides and commons. Generally abundant and well distributed. July to September.

The rare awned form (VAR. *aristata* Parnell) grows at Conham, G., whence Dr. Thwaites sent specimens for the British Museum Herbarium more than sixty years ago.

The dwarf tufted VAR. *pumila* Lightf. has been recorded from the Mendip Hills; *Herb. Flower*; from Crook's Peak and Blackdown! *Mrs. Gregory*; Brean Down! and from near Cheddar; *J. G. Baker* in *Fl. Som.* The investigations of Mr. E. S. Salmon, and cultivation by the Rev. W. R. Linton, have shown that *pumila* is merely a diseased state caused by the invasion of a smut-fungus. In the garden it gets rid of the fungoid trouble and reverts to type.

**1069. *A. alba* L. Marsh Bent-grass.**

Native; in marshes and damp pastures everywhere. June and July.

A polymorphous species, of which several varieties have been described. In *Engl. Bot.* ed. iii, Dr. Syme treats *A. alba* under two names—*genuina* and *stolonifera*.

VAR. *genuina*. This is the common plant, generally distributed in this district.

VAR. *stolonifera* L.

Stem rooting extensively at the lower joints; panicle dense, lobed, with more numerous branches at each node.

**G.** Mud in the New Cut by Bathurst Wharf.

**S.** Sea sands near Weston-super-Mare, Brean and Burnham.

As with *A. vulgaris*, the form of *A. alba* with awned florets is extremely rare. Dr. Syme had not met with it. Specimens from Durdham Down G. have been shown me by Mr. Bucknall.

[**POLYPOGON** Desf.]

[**P. monspeliensis** Desf. Annual Beard Grass.

Alien; in waste places; very rare.

June and July.

**G.** This beautiful grass is perhaps not truly indigenous anywhere in this country, although it has been known on the south coast since the time of Lobelius. Its connection with the Bristol flora dates from 1835, when the record "near Bristol" communicated by Mrs. Russell (*née* Worsley) was published in the *New Bot. Guide*. Mr. Watson, however, did not regard this as more than a casual occurrence, which doubtless it must have been. In 1883 many luxuriant specimens came up upon material dredged from the bed of the Avon and from the Floating Harbour, which had been placed the year before in the Black Rock Quarry. The plant continued there for three seasons and then died out. Its appearance under such circumstances on the bank of the river goes to show that the species may formerly have been an inhabitant of the Avon valley. On a waste-tip in St. Philip's Marsh in some plenty, July, 1904.

**S.** Casual at Twerton-on-Avon, 1897; *S. T. Dunn*.]

**[P. littoralis Sm. Perennial Beard Grass.**

Alien on waste ground ; or possibly at one time native in the Avon estuary ; now gone.

June and July.

**G.** Formerly plentiful in a low-lying portion of St. Philip's Marsh on the original alluvium, where it seems to have been first observed about 1875. As has been noticed elsewhere, these plants of a muddy salt-marsh were much more vigorous than the pretty little almost prostrate growth of southern coast sands. The alluvial clay of the Marsh was gradually consumed by a neighbouring brick works, and by 1885 the whole site of the *Polygon* had been excavated. It is now covered by mounds of city rubbish with which the entire area has been filled in. In its primitive condition the locality undoubtedly was a fitting station for the species under notice, which is found only by the sea or in salt-marshes near tidal rivers. But I fear the fact that not one of the earlier Bristol botanists—neither Rootsey, Stephens, Flower nor Swete—has left any local record for *P. littoralis*, points to a probable introduction after their time, and is decidedly against its establishing a claim to have been indigenous in the district.

On dredgings deposited in the Black Rock Quarry, July, 1883.

Both *Polygon*s produce plenty of seed, and their seeds grow readily in cultivation, so that were these grasses part of our aboriginal flora they might be expected to have a much wider range and to occur less sparingly.]

**GASTRIDIDIUM Pal. de Beauv.****1070. G. australe Beauv. G. lendigerum Gaud. Awned Nit-grass.**

Native on the Carboniferous Limestone at Clifton : sporadically on waste ground about Bristol : and, more rarely still, inland. July.

**G.** Sparingly, but persistently, in a few isolated spots along the verge of Clifton and Durdham Downs, and on St. Vincent's Rocks ; extending from slopes south of the Suspension Bridge to the Gully by Sea Walls. It is most abundant behind the site of the "New Well House," long since removed. Twice, at a long interval, I have seen a few plants by the roadside under the Downs ; and for a season or two (1885 to 1887) it occurred plentifully near the mouth of the railway tunnel, Sneyd Park. In 1883 and 1884 it came up luxuriantly on dredgings tipped in the Black Rock Quarry, but died out soon afterwards.

St. Philip's Marsh, on rubbish, several plants in 1889.

**S.** On Claverton Down near Prior Park, in small quantity, 1851 ; *Herb. Flower*. No doubt this is Mr. Flower's locality "above the Observatory Field, Bath," in *Fl. Som.* By the edge of a copse on Twine Hill near Wells, looking truly wild, 1883 ; *Rev. E. S. Marshall*.

First record for Somerset ; July, 1726 :—"In a field sowed with Trefoil [near Norton St. Philip] *Panicum* 4, Syn. 394, sed humilius, palmare nempe tantum. . . ." *Dillenius' Diary*.

This grass is seldom found away from the sea-coast, though Mr. Lees speaks of it in the Severn valley near Tewkesbury. In Kent and Sussex, however, I have seen it in profusion as a cornfield weed.

The excellent figure of *Gastridium*, together with those of other local species that illustrate the *Natural History of British Grasses* by E. J. Lowe, was drawn from specimens gathered at Bristol by the late Mr. Jos. Sidebotham, F.L.S., of Manchester.

**HOLCUS Linn.****1071. H. lanatus L. Yorkshire Fog.**

Native ; in meadows, pastures, hedgebanks and waste ground. Very common and universally distributed. June and July.



**1072. *H. mollis* L.** *Creeping Soft-grass.*

Native; in hedgerows, wood borders, and furzy spots; rather rare.

July to September.

**G.** Along several yards of a low hedge in the lane between Mangotsfield and the Sodbury Road! Plentiful among furze in a small area on the western side of Yate Common! Cromhall Common! Wyck Rocks; *J. G. Baker*.

**S.** Roadside bank on Rownham Hill, 1894! *C. Bucknall*. Not seen there since. Hedgebank near the Abbot's Pond, 1889. In several places on Failand Hill; *Miss Agnes Fry* and *D. Williams*. In a bushy damp hollow by the G.W.R. between Brislington and Keynsham: known there many years at two spots. Woods near Compton Dando and Houndstreet; *D. Fry*. Stanton Drew, abundantly in a hedgerow with *Allium oleraceum*; and in a bushy field between Stanton Drew and Knowl Hill; *Id.* I have seen it on the border of an oatfield in that neighbourhood. Wood between Farrington Gurney and Litton; *D. Fry*. Congresbury; and Downhead Common; *Fl. Som.* Hedgerow on Claverton Down, Bath; *Herb. Flower*. Batheaston; *T. F. Inman*. Combe Hay and Midford; *Fl. Bathon. Suppl.*

"I have observed that the lowest sheaths have occasionally numerous patent or slightly deflexed hairs, a character which does not appear to be noted in the books."—*D. Fry*.

**AIRA Linn.****1073. *A. cæspitosa* L.** *Tufted Hair-grass.*

Native; in moist woods, hedge-bottoms, and ill-drained pastures. Common and abundant in suitable positions.

July.

The var. *brevifolia* Parnell has been observed on the border of Leigh Woods.

**1074. *A. flexuosa* L.** *Heath or Wavy Hair-grass.*

Native; on heaths, banks, and dry open moorland; common.

July.

**G.** Trooper's Hill. Crew's Hole. Conham. Glen Frome, near Stapleton and Frenchay. Rodway Hill. Siston Common. Westerleigh. Yate Common. Chipping Sodbury. Ivory Hill. Cromhall Common. Tortworth. Wotton-under-Edge. Dursley. Berkeley. Wyck Rocks.

**S.** Lane between Abbotsleigh and the Tan-pits; and on Failand Hill. Wraxall Hill. Cadbury Camp. Between Brislington and Keynsham Hams. The Court Hill and Norton's Lane near Clevedon. Abundant on the higher ground of Mendip. North Stoke, Lansdown, and other hills about Bath. In several places near Wells.

**1075. *A. caryophyllea* L.** *Silvery Hair-grass.*

Native; on dry hilly pasture-ground, and in poor fields near the coast; rather rare.

May and June.

**G.** On the pennant grit at Conham and Hanham. Rough ground by the Avon at West Town, below Shirehampton, 1910. "Roddy-hill" [Rodway];

*Swayne* in *Withering* (1796). Still there, and on the adjacent Siston Common. Almondsbury Hill. Tytherington Hill. Peak Down near Dursley.

**S.** Frequent on Leigh Down. The Old Park, Abbotsleigh. Failand; *D. Williams*. Furzy hillside between Brislington and Keynsham. Chelvey Batch. Backwell Hill. Pasture near the Nore, Portishead; and on the coast downs towards Clevedon. Hillside, Kewstoke. Purn Hill, Bleadon. Brean Down. Slope of Blackdown towards Shipham. On the peat moors at Burtle and Shapwick.

**1076. *A. præcox* L.** *Early Hair-grass.*

Native; on dry, rocky and sandy soil, chiefly on the Coal Measures; local, but rather common. April and May.

**G.** Brandon Hill, still plentiful. Stony banks above the Avon at Conham and Hanham. Cliff edge, Durdham Down, sparingly. Frenchay Common. Rodway Hill near Mangotsfield. Siston Common. Yate Common. Ivory Hill. On Trap between Damery and Stone. Hills above Dursley.

**S.** Rocky pasture (Pennant) near the Avon between Brislington and Keynsham. Failand, at one spot on sandstone! *Miss Agnes Fry*. Near Knowl Hill by Chew Stoke, and at Stanton Drew; *D. Fry*. On the Court and Strawberry Hills, and in some other spots about Clevedon, apparently confined to the Pennant Grit; *Id.* Brean Down. Cheddar; *J. G. Baker*. Blackdown on Mendip. Frequent on the hills; *Fl. Bathon*.

**TRISETUM Pers.**

**1077. *T. pratense* Pers.** *T. flavescens* Beauv. *Avena* L. *Yellow Oat-grass.*

Native; in meadows of mowing grasses, dry banks and roadside wastes; very common. July.

**AVENA Linn.**

**1078. *A. fatua* L.** *Wild Oat.*

Colonist; among crops and on the borders of arable fields; rather common. Said to be a test of cultivation; being most abundant on the worst-managed farms. July and August.

**G.** About Bristol, frequent; *Thwaites* in *Swete*, *Fl.* Waste ground, St. Philip's, 1890 to 1902. Cornfields by Stapleton; *Dr. H. O. Stephens*. Fishponds. Henbury. Horfield. Among wheat between Patchway and Brentry, 1907. Between Alveston and Gaunt's Earthcott, 1908. Cornfields, Pilning, 1897 to 1909. Salthouse Farm in the Severn flats, 1906; so profusely as to conceal a crop of beans. A farmer said that some fields on Ableton Lane, near by, were noted for producing wild oats. He thought, however, that since the Severn Tunnel had drained the district, and the land had become drier than formerly, the weed had decreased in quantity. But in 1909 it still stood high among the crops in the Severn marshland.



**S.** Near Abbotsleigh. Portbury, 1892. Portishead. Cultivated fields between Stockwood and Keynsham. Field on Ursleigh Hill, and between Publow and Queen Charlton. Abundant among barley near Knowl Hill, Chew Stoke; and with potatoes near Norton Hautville, 1887 to 1892; *D. Fry*. With oats and vetches by Featherbed Lane towards Clutton, 1888; *Id.* Fields of beans and oats between Clevedon and Walton-in-Gordano were full of it, up to 5 feet high, in 1887. North Stoke. Englishcombe. Plentiful in coast fields near Woodspring, 1883 and 1885. Congresbury and Cheddar; *Fl. Som.* Weston-super-Mare, 1837; *Herb. Powell*. Wells and Glastonbury; *Miss Livett*. "Much too frequent in cornfields;" *Fl. Bathon*.

**1079. A. pratensis L.** *Narrow-leaved Oat-grass.*

Native; on limestone hills and downs, local. Frequent also on the Great and Lower Oolites.

June and July.

**G.** In plenty on Clifton and Durdham Downs. Kingsweston Down. Stinchcombe Hill. Nibley Knoll. Hills at Dursley, 1865; *Herb. St. Brody*.

**S.** Leigh Down; a part now enclosed. Pastures on Failand, plentiful; *Miss Agnes Fry*. Queen Charlton. Saltford. Worle Hill. Brean Down. Common about the Mendip Hills; as at Winterhead, Shipham and Cheddar. Dulcote Hill, Wells; *Fl. Som.* Claverton Down near the Brass Knock; *D. Fry*. Monkton Farley Down and Conkwell; *A. E. Burr*. Pastures on the hills; *Fl. Bathon*.

**1080. A. pubescens Huds.** *Downy Oat-grass.*

Native; on downs and dry hills; sometimes in meadows of mowing grass. More common than the last and not so strictly confined to calcareous soil, although showing a decided preference for the Carboniferous Limestone.

June and July.

**G.** St. Vincent's Rocks. Clifton and Durdham Downs. Combe Down near Henbury. Almondsbury Hill. Old Down, Tockington. Yate. Chipping Sodbury. Hillsides above Wotton-under-Edge. Nibley Knoll. Stinchcombe Hill. Wyck; *Swayne* in *Withering* and *Miss Worsley* in *Herb. Brit. Mus.* Still there, 1909.

**S.** Leigh Down. Near Brislington; *Mrs. Russell* in *Herb. Watson*. Bedminster Down. Pastures between Bedminster and Bourton, and in the G.W.R. cutting. Coarse pasture on Failand Hill. Whitchurch. Keynsham. Ursleigh Hill. Stanton Drew and Featherbed Lane; *D. Fry*. Wraxall Hill. Frequent about Clevedon. Worle Hill! Weston Hill; *St. Brody*. Brean Down. Slopes of Mendip, in many spots. Cranmore, and Milton Hill near Wells; *Miss Livett*. Combe Hay. Frequent in hill pastures about Bath.

**ARRHENATHERUM** *Pal. de Beauv.*

**1081. A. avenaceum Beauv.** *A. elatius M. et K.* *False Oat-grass.*

Native; in hedgerows, pastures and cultivated fields. The handsomest of our roadside grasses. Very common and universally distributed. June and July.

VAR. **nodosum** Reichb. *A. bulbosum* Presl. *A. precatorium* Beauv.  
*Onion Couch.* *Knot Grass.*

Has the base of the stem enlarged into a series of bulb-like knobs arranged one above another like a string of onions. In addition, the florets appear to be always hermaphrodite, and there are one or two other minor differences from *A. avenaceum*. These characters, which are stated to come true from seed in cultivation, have induced some systematists to consider the plant a distinct species. With us, in arable land it is at least as common as the type. I have seen the roots raked into heaps with the stubble from a Charlton cornfield.

First local record, 1667. "*Gramen caninum nodosum* duobus nodis majore semper superimposito minori. Below Bristol in the meadows on the north of the River by the Ferry."—Merrett, *Pinax*, p. 50. Ray quotes this in his *Indiculus plantarum dubiarum* as if he were uncertain what grass was intended. The locality described exactly fits our *Alopecurus bulbosus*, but I believe Merrett's name is now understood to indicate the nodular variety of *Arrhenatherum*.

### SIEGLINGIA Bernh.

**1082. S. decumbens** Bernh. *Triodia decumbens* R. Br. *Heath-grass.*  
 Native; on downs, heaths and dry hills; rather rare. June and July.

**G.** Clifton and Durdham Downs. Rodway Hill near Mangotsfield. Yate Common. Sodbury Common. Cromhall. Breakheart Hill, Dursley.

**S.** Leigh Down. Pasture between Brislington and Keynsham. Failand Hill. Furzy hillsides in the Old Park, Abbotsleigh. Stanton Drew; *D. Fry*. Ursleigh Hill and Queen Charlton. Coarse pasture near Pensford. Uphill; *St. Brody*. Worle Hill. On Mendip at Axbridge, Cheddar and Draycott; and on the slopes of Blackdown. Dulcot Hill, Wells; *Miss Livett*. Lansdown; *J. G. Baker*. Hampton Down; *Miss Peck*. Near Claverton; *Fl. Bathon*.

### KCELERIA Persoon.

**1083. K. vallesiana** Asch. & Graebn. *Dillenius' Hair-grass*.\*  
 Native; on limestone rocks; very rare. June and July.

**S.** Uphill, on exposed ledges facing south-west. Brean Down, abundant in similar situations and in thin turf with a sunny aspect, extending about a mile along the rocky headland. Worle Hill, plentiful in several spots. Crook's Peak, many plants (mostly barren) on stony ground towards the summit, and a larger quantity near the base of its southern slope! *C. Bucknall*.

These localities are at present the only ones known in the kingdom.

The history of this grass in Britain is remarkable. In 1726 Dillenius, Sherardian Professor of Botany at Oxford, accompanied by Dr. Brewer, made a tour of two months through the West of England and Wales in search of plants, visiting the Mendips, Cheddar, Uphill and "Brent" [Brean] Down.

\* A figure, drawn from a Worle Hill specimen, faces page 563.



In the still extant description of this journey Dillenius notes the discovery on July 16 at Uphill and Brean Down of a new grass which he calls "*Spartium montanum radice bulbosa et fungosa*." Later, by means of A. Scheuchzer's description in the *Agrostographia*, published in 1716, he identified it with the species therein named "*Gramen vallesianum tenuifolium, panicula spicata, viridi argentea, splendente*." This identification was correct and testifies to the skill of Dillenius in diagnosis as much as the detection of the growing plant does to his keenness as a field-botanist. However, the specimens he gathered somehow became separated from his label and memorandum,\* and so remained unremarked in the Sherardian Herbarium for close upon two centuries. Meanwhile nearly every British botanist of note, generation after generation, came to Brean Down for its rare plants and heeded not this *Koeleria* growing abundantly about the rocks. Although the facilities we possess for botanical exploration are so great in comparison with those at the command of our forefathers, and the advances of science have been so prodigious since the days of Ray and Dillenius, yet it is clear that in critical acumen and intellectual vigour the people of to-day can claim no superiority over those who laid the foundations of our knowledge. It was not until 1904 that Mr. G. Claridge Druce, of Oxford, when preparing a memoir of Dillenius and an account of his collections, looked through a packet of odds and ends, saw the unlabelled specimens in one place and an empty sheet with memo. in another, surmised that they were related to each other, and fitted them together again. Mr. Druce now wanted proof that he was right in so doing; and, although in October, the next week-end found him on the way to Uphill. Without any difficulty he soon detected the plant with some withered flower-stems attached that put the identification beyond dispute. Mr. Druce is to be congratulated on his acuteness and enterprise.

*K. vallesiana* prefers the driest and most exposed slopes of the hills where it occurs, and is much more abundant in spots where the bare rock appears than in deeper soil or turf.

The panicles are continuous, not more or less interrupted; and the stems are stouter than those of *K. cristata* plants with which it usually\* grows. The root-stock bears a dense tuft of short stout shoots, most of which are barren. The whole plant is frequently without a flower-stem: sometimes only one shoot flowers, seldom more than three. Each shoot is separately enveloped at the base in a fine fibrous network, closely interwoven and of some thickness; the whole forming a compact tuft often several inches in diameter, firmly wedged among stones or anchored in a crevice of rock by plentiful long strong root-fibres.

I have several times noticed, in more than one locality, white patches of the mycelium of a fungus upon the fibrous sheathing—the health of the plant apparently not being thereby affected. This suggests the origin of the old name conferred upon the species—*gramen montanum fungosum*—or, perhaps,

\* For a transcript of Dillenius' notes and a reproduction of the excellent figure which he drew, a full description of the British plant and remarks on its nomenclature and European distribution, the original paper by Mr. Druce in *Journ. Bot.* 1905, p. 313, should be consulted.

the latter adjective had reference to the filamentous matting which is so conspicuous a character.

*K. vallesiana* is stated to be specially variable in the clothing of stem and leaves. The British plant differs from type in one or two unimportant particulars, but does not agree precisely with either of the Continental named varieties. Dr. Domin, on examination of material gathered by Messrs. Druce and Marshall at Uphill and Brean Down, identified a part with the var. *glabra* Gr. et Godr., and some as var. *alpicola* G. et G.; but untypical in both cases. We may well disregard these ill-defined divergences.

[*K. phleoides* Pers. Alien casual. A Mediterranean grass. It appeared at St. Philip's Marsh, Bristol, 1902; and in Portishead Station-yard, 1906-7.]

#### 1084. *K. gracilis* Pers.

Native; in dry hilly calcareous pasture land; rather common locally.

June and July.

**G.** St. Vincent's Rocks. Clifton and Durdham Downs, abundant towards the Avon Gorge. Almondsbury Hill. Wyck Rocks.

**S.** Leigh Down. Upper Knowle. Near Queen Charlton. Furzy hillside, Providence Place, Long Ashton. Plentiful about Clevedon. Wavering Down; *C. Bucknall*. Worlebury Hill, Weston-super-Mare. Uphill. Brean Down. Hills near Wells. Hampton Down; *Miss Peck*. Claverton Down, Bath.

VAR. *gypsacea* Domin.

**G.** Durdham Down, 1879; authenticated by Dr. Domin; *G. C. Druce*.

#### 1085. *K. britannica* Domin.

Native; in like situations to those of *K. gracilis*, but less frequent.

June and July.

**G.** Durdham Down.

**S.** Grassy roadsides on the Failand plateau. Plentiful on Mendip, near Cheddar, Winterhead, Shipham, etc. Worle Hill; *C. Bucknall*.

This is a highly critical segregate of *K. cristata* Pers., adopted in deference to the views of Dr. Karl Domin, monographer of the genus. On a recent visit to this country Dr. Domin examined a large mass of specimens from various localities and found that the prevailing British form was peculiar, different from all others that he had seen. He pronounced it to be "a good geographical sub-species," and named it accordingly.

The plants of this district, as yet only imperfectly studied, have been determined with the aid of descriptions quoted by Mr. Druce in *Journ. Bot.* 1905, p. 354, etc.

### MELICA Linn.

#### 1086. *M. nutans* L. *M. uniflora* Retz. Wood Melic-grass.

Native; in rocky woods and shady lanes; common.

May and June.



**G.** Bushy slopes above the Avon from St. Vincent's Rocks northward. Cook's Folly Wood. Sea Mills, and the Trym valley. Blaize Castle Woods. Berwick Wood and Spaniorum Hill. Hanham. Iron Acton. Tytherington. Yate Rocks. Tortworth. Dyrham. Abundant about Hawkesbury and Hillsley. Wotton Hill. Dursley. Berkeley.

**S.** Leigh Woods. A striking feature of deep lanes on Failand. St. Anne's, Brislington. Bishopsworth. Barrow Gurney. Brockley Combe. Portbury Woods. Portishead. Weston-in-Gordano. Clevedon. Rhodyate Hill. Congresbury. Banwell. Compton Martin. Cheddar Wood. Sidcot. Shipham. Mells. Great Elm. Wells. Frequent about Bath; *Fl. Bathon.*

### MOLINIA Schrank.

1087. *M. varia* Schrank. *M. cærulea* Moench. *Blue Moor-grass.*  
*Purple Melic-grass.*

Native; in rough moory pastures, heaths and commons; rather rare and local. July to September.

**G.** Durdham Down, no date; *Herb. Stephens.* The plant is not mentioned by Swete in his *Fl. Brist.* Through unexplained causes it was not rediscovered until Sept., 1888, when a wet summer had followed a very hot one; and then a large quantity appeared among the furze in several places on Clifton Down, and also on Durdham Down near the Gully. That it should have escaped notice so many years at these frequented spots is most remarkable. Alveston, Aug., 1839; *Herb. Powell.* Among gorse on the west of Bury Hill above Moored, 1908! Yate Common.

**S.** Swamp in a wood off Sandy Lane west of Abbotsleigh; six or seven old tussocks with luxuriant panicles, Sept., 1892. Another instance of an unsuspected locality within easy reach of the city. A small quantity in a swampy hollow near Failand Schools; *D. Williams.* Many large tussocks in a rushy field on the peat below Weston-in-Gordano, and sparingly on the moor ditchbanks, 1902 to 1910. The form there also is very luxuriant, to four feet high, with the panicles often more green than purple. It might be put to the *var. robusta* Prah!; a variation, however, that seems to be mainly vegetative. Boggy fields in the Lox Yeo valley near Winscombe. Abundant on Downhead Common. A patch of fair size on golf links between Burnham and Berrow, 1907; *C. Wall.* Plentiful on the Mendips at Blackdown, the Mineries, Cranmore and Beacon Hill. The peat moors in great quantity; noted there by Withering in 1796. "Near Bath;" *Mr. Walker* in *Fl. Bathon.*

### POA Linn.

1088. *P. annua* L. *Annual Meadow-grass.*

Native; very common everywhere.

March to September.

[*P. bulbosa* L. A rare and local species which has been reported several times from within this district; but most probably in error. Plymouth and the Isle of Wight are the nearest stations for it.]

**1089. *P. nemoralis* L.** *Wood Meadow-grass.*

Native; in rocky woods, shady lanes, and on wall-tops; rather rare.

June to August.

**G.** Bushy flank of St. Vincent's Rocks. Cook's Folly Wood. Blaize Castle Wood. Copse between Horfield and Filton; *Herb. Stephens.* Combe Down and the Trym valley below Westbury. Lane between Stapleton and Stoke Gifford. Wooded bank of Avon between Crew's Hole and Hanham, in plenty. Bitton. Wyck Cliffs; *Swayne* in *Withering*. Wood borders above Wotton-under-Edge. Frequent about Dursley. Lower Woods, Wickwar; *Miss Roper.*

**S.** Leigh Woods, in several places. St. Anne's Wood and the bushy riverbank, Brislington. Flax Bourton, about the Combe. Keynsham; *D. Fry.* Bishop Sutton. Portishead Woods, and lane leading to Portishead Down. Walton-in-Gordano; *D. Fry.* Lower edge of Limeridge Wood, Tickenham. Limestone cliffs, Cheddar; and Ebbor rocks; *J. G. Baker.* On walls near the church at Worle, in two places; *Rev. E. S. Marshall.* Wells; *Miss Livett.* Not uncommon in the woods; *Fl. Bathon.*

**1090. *P. trivialis* L.** *Rough Meadow-grass.*

Native; in meadows, pastures and roadside wastes; very common and generally distributed.

June and July.

**VAR. *glabra* Doell.** = *P. Koeleri* DC., with smooth leaf-sheaths, is on record from Winscombe (*W. F. Miller* in *Fl. Som.*). According to Syme it should be looked for in woods and shady places; but in Kent it is abundant on dry grassy banks near the sea.

**1091. *P. pratensis* L.** *Smooth Meadow-grass.*

Native; in meadows and pastures, on roadsides and wall-tops; abundant in all parts of the district. Considered to be the most common species after *P. annua*. It forms much of our garden turf, and occurs frequently on the older walls about Bristol.

June and July.

**VAR. *subcærulea* Sm.**

Is a well-marked variety. It is quite common on rocky ground; the loose, soil-covered walls of our colliery districts; and in dry sandy turf along the Channel shore. Specimens gathered by Miss Atwood on St. Vincent's Rocks, 1862, are in the British Museum Herbarium.

I have seen the viviparous state of *P. pratensis*, which is rare at low elevations, in a quarry at Tytherington.

**1092. *P. compressa* L.** *Flat-stalked Meadow-grass.*

Native; on old stone walls, dry banks and rubble. Rather common, especially in the Avon valley.

July.

**G.** St. Vincent's Rocks about the Zigzag, and here and there along the riverside rocks and railway as far down as Sea Mills. Old walls on the



slopes of Kingsdown above Stokes Croft; in the Hampton Road, Redland; Woodbury Lane on Blackboy Hill; Constitution Hill, Clifton; etc. St. Philip's Marsh, on rubble; 1904 and subsequently. On walls and quarry-heaps in Glen Frome near Stapleton and Frenchay. Westbury-on-Trym; *Herb. Powell*. Walls at Winterbourne village and by the church. About Wotton-under-Edge, in several places.

**S.** By the Avon under Leigh Woods, on rubble and railway banks. Walls at Bedminster, and about iron-works at Ashton Gate. Failand, on walls by the golf links and near Failand Hill House. Portishead. Roadside waste near Queen Charlton, 1889 and 1903. Saltford; *D. Fry*. Frequent about Clevedon. Weston-super-Mare; *St. Brody*. Cheddar. Draycott. Rodney Stoke. Ebbor Gorge. Wookey; *J. G. Baker*. Stoke Lane; Wells; and Shepton Mallet; *Fl. Som.* Extremely plentiful on some walls at Kelston, and at Weston near Bath; *D. Fry*. Very common on wall-tops about Bath, 1884; *J. G. Baker*. Walls at Charlecombe, etc.; *Fl. Bathon*.

First local record:—"In muris circa Bristolium, 1780."—*Dr. J. Sibthorp*.

**VAR. *P. polynoda* Parnell.**

A form of doubtful value as a variety; still less as a species. The late Miss Atwood first drew attention to it in this vicinity. Her note, written to the old *Phytologist* in 1852, mentioned three localities at Bristol; and her specimens, gathered "by Avonside, beyond the Hotwells, June 1852," are in the British Museum and Flower herbaria.

A wall-top form of *P. pratensis* is sometimes mistaken for this species; but the latter is more erect and far stiffer in habit, with a smaller and closer panicle that is often unilateral.

**GLYCERIA R. Br.**

**1093. *G. aquatica* Wahlb. Reed Meadow-grass. Reed Sweet-grass.**

Native; in rivers and ditches, usually in deepish water. Abundant in the marshy lowlands of North Somerset. July and August.

**G.** In the Avon above Bristol near Conham. Ditches between Pilning and Aust. Littleton-on-Severn. Cowhill. Sheperdine.

**S.** Bank of Avon at St. Anne's, Brislington. Bedminster Meads; *Swete, Fl.* Marshes west of Honey Hall and Brinsea. Wick St. Lawrence. Tickenham Moor near Clevedon. Congresbury. Marsh ditches throughout the Cheddar Valley, extending to Brent Knoll, Burnham and Highbridge. Canal banks near Bathampton, Combe Hay and Radford. In the canal and river; *Fl. Bathon*.

A magnificent grass, as those who have seen a ditchful of it will readily acknowledge.

**1094. *G. fluitans* R. Br. Floating Meadow-grass or Floating Sweet-grass.**

Native; in water; very common.

June and July.

VAR. *pedicellata* Townsend.

**G.** Meadows between Avonmouth and Lawrence Weston. Hallen Marsh.

**S.** Swamp in a wood near Abbotsleigh, 1886 to 1910. From this swamp, since made a rubbish-tip but not yet quite destroyed, I distributed many specimens that were approved by referees of the Record and Exchange Clubs. The same thing was plentiful by the Malago near Lock's Mills in 1891. And in Pensford Marsh, 1893; *D. Fry*. Plentiful by the Avon at Saltford and by the lake in Newton Park! *Id.* Keynsham! Canal near Bathampton and Combe Hay. Wells; *Fl. Som.* Marsh ditch, Burnham.

A depauperate form of *fluitans*, growing with the type in Markham Bottom, at Compton Greenfield, and on Itchington Moor, near Tytherington, approaches, and is perhaps referable to, the VAR. *triticea* Fries.

Mr. Townsend agreed that his *G. pedicellata* is very certainly a hybrid (*fluitans* X *plicata*). It never fruits; and the florets, being empty, persist long after those of other *Glycerias* have fallen to pieces—probably from their weight.

Hybrids among the grasses are much rarer than might be expected, considering how many species are flowering at the same time in close proximity.

1095. *G. plicata* Fries. *Folded-leaved Meadow-grass.*

Native; in the water of ditches, ponds and slow streams; frequent.

June and July.

**G.** Marsh by the Boiling Well near Baptist Mills, 1902. Siston Common. Boggy ditch below Hallen. Wet hedge-bottom near Wotton-under-Edge.

**S.** Boggy rill on Failand Hill. Norton Malreward; and Pensford marsh, with other forms; *D. Fry*. Stanton Drew. Roadside near Chew Magna towards Northwick. Abundant by a mill-dam between Chew Magna and Winford; very typical with compound panicles and very numerous spikelets, as many as 22 on the lower sets of branches against 4 or 5 in *fluitans*. Corston; *D. Fry*. Lake in the park of Newton St. Loe. Abundant in the mill pool at Cheddar, 1906. Streamside near Rowberrow, under Blackdown. Roadside ditch between Cheddar and Draycott; *J. G. Baker*. Congresbury and Cranmore; *Fl. Som.* Godney and elsewhere near Wells; *Miss Livett*. River and canal between Bath and Bathampton.

VAR. *subspicata* Parnell.

With very few spikelets in a simple panicle.

**S.** Stockwood and Pensford, *vide* A. Bennett; *D. Fry*.

SCLEROCHLOA *Pal. de Beauv.*1096. *S. maritima* Lindl. *Creeping Sea Meadow-grass.*

Native; in salt-marshes, and on the muddy banks of tidal rivers and inlets from the Channel. Abundant in mud on both banks of the Avon from Ashton Fields downwards.

June and July.



Specimens gathered at Avonmouth by Mr. Bucknall had panicles with three or four branches in a whorl instead of the customary one or two.

I have seen it sparingly in blown sand near Burnham; a rare position in this country, although on Mediterranean sands it is often abundant.

First local record:—"Bank of the river near the Rock House among the mud, Bristol, 1773."—*Herb. Banks.*

**1097. *S. procumbens* Beauv. Procumbent Sea Meadow-grass.**

Native; on waste ground by tidal waters; rare and local. The building of docks and retaining walls has occasioned the loss of much of this plant from its old stations. June and July.

**G.** Formerly plentiful by the Avon near Hotwells and under the Downs, according to Stephens and Swete. Now scarce, but still occurring here and there along the course of the river below Bristol. It came up abundantly on dredgings deposited in the Black Rock Quarry, 1883 and 1884, but soon died out. St. Philip's Marsh, plentiful at one time before the ground was filled in. By the New Cut near the General Hospital, and in larger quantity on the other side higher up, opposite the Cattle Market. Formerly on the old rifle range above Avonmouth, now destroyed; but it reappeared on made ground thereabout in 1910.

**S.** Bank of the river at Rownham; *Stephens Cat.* (1835). Still there, occupying bare spots on the fringe of the salt-marsh turf and often immersed at high tide. Clevedon; *S. T. Dunn.*

The earliest record is by Curtis, who differentiated and named the plant. He first observed it in 1793 at the foot of St. Vincent's Rocks, and published it as *Poa procumbens* in the *Fl. Londin.* (1795). It was figured too in 1796 by Withering (*Arr.* ed. 3, pp. 146-7) under the name of *Poa rupestris*, from a gathering "just at the entrance into the walk from the Hotwell House."

**1098. *S. distans* Bab. Reflexed Meadow-grass.**

Native; in salt-marshes and waste ground near the tidal rivers; rather rare and local. June to August.

**G.** In many places near the Avon, the Feeder and New Cut, from St. Philip's Marsh to below Shirehampton, but only in small quantities at the present time. On made ground adjoining the Royal Edward Dock at Avonmouth, in profusion 1910.

**S.** Rownham Ferry, rare. In muddy ditches and in the Pill, Clevedon, 1887 and 1900. Near the Gull House, Clevedon; *D. Fry.* Weston super-Mare; *W. B. Waterfall.* Uphill; *Rev. E. S. Marshall.* By the Channel at Burnham, 1882, 1888 and 1905.

**1099. *S. rigida* Link. Hard Meadow-grass.**

Native; on and under old walls and on dry stony ground. Very common about Clifton and on the Coal Measures, as noted by Dr. Sibthorp in 1780.

June and July.

1100. *S. loliacea* Woods. *Dwarf Meadow-grass.*

Native; in a few spots near the Severn and Channel; very rare.

June and July.

**G.** In fair quantity on sea-bank masonry below New Passage, 1904! *C. Wall.* A little later Mr. Wall traced it along the shore as far as the Tunnel pumping station; and in 1906 the Misses Cundall detected it on Severn Beach. The plant extends therefore about two miles in this locality.

**S.** Weston-super-Mare, 1853; *Herb. Lawrence.* Sparingly on the hillside at Birnbeck above the pier, 1880. In 1889 there were a good many roots about the steps leading to Anchor Head Rocks. Burnham, 1880; *Miss W. Mayow.* In 1888 it was rather plentiful about the esplanade at Burnham, and Mr. D. Fry noticed it in other spots about the town. Berrow; *J. C. Collins.*

This grass has been placed by various systematists in half-a-dozen genera at least (*Poa*, *Desmazeria* etc.), and has received many specific names. Of these titles the most uncouth, but possibly the most valid, is Kunth's *Festuca rottboellioides*.

## BRIZA Linn.

1101. *B. media* L. *Common Quaking Grass.*

Native; in hill pastures and dry meadows; very common.

June.

[*B. minor* L.

Alien casual; very rare.

**G.** St. Vincent's Rocks; *Bot. Guide* (1895). In *Herb. Brist. Nat. Soc.* there is an undated specimen stated to have been collected on St. Vincent's Rocks by Dr. Dyer. St. Philip's Marsh, two small plants on refuse in 1889.

**S.** "Prope Bath, D. Alchorne."—*Huds. Fl. Angl.* ed. 2, (1778). Included in the *Fl. Bathon.* apparently on personal observation of the author; but, according to Jenyns, Babington said later that the record was erroneous. The citation for North Somerset in *Topogr. Bot.* rests on "Withers MS."]

## CATABROSA Pal. de Beauv.

1102. *C. aquatica* Beauv. *Water Whorl-grass.*

Native; in ditches, shallow pools and rills; rather common. June and July.

**G.** Wet ditch between Stoke Bishop and Westbury! *Miss Roper.* Pools on Horfield Common; *Herb. Stephens.* Filton Meads, in several ditches. Henbury. Hallen Marsh. By the Avon above Bristol. In a roadside pool near Siston. Roadside rill between Alveston and Tockington. Yate Common. Chipping Sodbury. Near Cromhall. Charfield. Berkeley.

**S.** Meadows by the Malago near Lock's Mills. Abundant in a small rill that drains from Failand Hill into Markham Bottom; pointed out to me by Miss Agnes Fry. Less plentiful by the stream in Markham Bottom. Nailsea. Yatton. Marsh ditches and pools about Max below Winscombe, and in the Cheddar Valley. Ditches between Portbury and the Channel, and towards Portishead. Widecombe near East Harptree, 1853; *Herb. Lawrence.* Rhine under Brean Down, 1888! *Mrs. Gregory.* Pools near the Mineries on Mendip. Wedmore. Frequent in rhines and swamps on the peat moors. Common near Bath; *Fl. Bathon.*



There is a good deal of truth in the remark (*Fl. Cheshire*) that this grass often seems to choose roadside water, just as the Common Mallow chooses roadside soil.

### CYNOSURUS *Linn.*

#### 1103. *C. cristatus* L. *Dog's-tail Grass.*

Native; in meadows and pastures. Very common and widely distributed.

June and July.

A viviparous specimen from Clifton Down, 1852; *Miss Atwood* in *Herb. Brit. Mus.*

#### [*C. echinatus* L.

Alien casual; occurring on trade refuse. A native of the Channel Islands and southern Europe.

**G.** St. Philip's Marsh, five or six plants in 1888. About a dozen there in 1906. Two in 1908.

**S.** Portishead Station-yard, 1907. Casual near Twerton, 1897; *S. T. Dunn.*]

### DACTYLIS *Linn.*

#### 1104. *D. glomerata* L. *Cock's-foot Grass.*

Native; in meadows and pastures, and the borders of fields and woods. Very common.

June and July.

No British grass varies so much in the size and form of its inflorescence. Luxuriant plants in rich pastures or damp woodland may have panicles a foot or more across; while in the dry turf of a sea cliff, exposed to sun and wind, the stem is often less than that in height, and the panicle reduced to a close knob of an inch or so in diameter. The latter state has received the varietal names *congesta* and *abbreviata*. It is seldom viviparous. I found it so by the Avon at sea level in 1884, and by a roadside on Mendip at 800 ft. in 1906; and Miss Roper had it from Leap Bridge, Downend, in 1909.

I am inclined to doubt if the Cock's-foot be so palatable to cattle as is stated by Mrs. Lankester in *English Botany*. On several occasions in deer parks and sheep runs I have noticed that, while the herbage in general was cropped close, tufts of this grass remained conspicuously untouched. Withering says that cows refuse it.

### FESTUCA *Linn.*

#### 1105. *F. uniglumis* Sol. *Single-glumed Fescue-grass.*

Native; on sea sands; rare and local.

June.

**S.** Abundant among the dunes and on sandy turf along the Channel shore above Burnham.

#### 1106. *F. sciuroides* Roth. *F. bromoides* Sm. *Barren Fescue-grass.*

Native; on dry banks, wall-tops, and bare sandy ground; common both on pennant and limestone.

June and July.

**G.** Rocks, banks and walls about Clifton and the Downs; and along the quarried ground by the riverside. On the top of Brandon Hill, Bristol;

*Swayne* in *Withering* (1796). Still there. About the quays and timber yards near Cumberland Basin and the Harbour. Pur Down. Plentiful on quarry rubble in Glen Frome by Stapleton and Frenchay. Trooper's Hill. Crew's Hole. Conham. Hanham. Kingsweston Down. Staple Hill. Rodway Hill. Pucklechurch. Yate Common; *C. Bucknall*. Tytherington. Falfield.

**S.** Banks under Leigh Woods below Bristol. Failand; *D. Williams*. In several places between Brislington and Keynsham, on pennant. Walls and banks at Stanton Drew, Chew Magna and Knowl Hill; *D. Fry*. Portishead. On some of the hills, Clevedon; *Mrs. Lainson* and *D. Fry*. Kewstoke Bay; *Rev. W. H. Painter*. Worle Hill and the encampment at Weston-super-Mare. Sandford Hill. Cheddar Gorge and village. Brean Down. In two spots near Wells; *Miss Livett*. Shapwick; *Rev. E. S. Marshall*. Hampton Down and Claverton near Bath.

**1107. F. Myuros L.** *F. Pseudo-myurus* Soy.—Will. *Mouse-tail Fescue-grass*.

Native; on dry waste ground, roadsides and wall-tops; rather rare.

June and July.

**G.** On the Observatory Hill, Clifton, since 1900. In the Gully, Durdham Down; and more plentifully by the road and railway at the foot of the rocks. Sea Mills. West Town, Shirehampton, on made ground. Railway sidings by the Royal Edward Dock, 1910. Stapleton; *Herb. Stephens*. On the mounds of scorïæ etc. under Trooper's Hill, Crew's Hole. Quarry rubble near Hanham Mills. Mount Hill, Kingswood! *Dr. Hassé*. Near Mangotsfield; *Miss Livett*. Wall of farm-yard by Winterbourne Church. Colliery waste heap near Warmley. Plentiful on a wall opposite the entrance to Acton Court, Iron Acton. Sparingly by Thornbury Station, 1884. Wyck Rocks; *Fl. Bathon. Suppl.*

**S.** About the Avonside quarries under Leigh Woods. Ashton Gate colliery and iron-works. Stockwood; *Herb. Stephens*. In abundance by the roadside near Saltford Station; extending at intervals to Newton Bridge, 1889 and subsequently; *D. Fry*. Waste ground by Portishead Station, 1902. Redhill, on the Bridgwater Road, 1906; *C. Bucknall*.

**1108. F. ovina L.** *Sheep's Fescue-grass*.

Native; in dry hilly pastures; very common on our downs. June.

A polymorphic species, of which the more distinct variations are:—

**VAR. capillata** Lamark = *pahudosa* Gaud. = *tenuifolia* Sibthorp.

With very long, flaccid setaceous leaves and awnless flowers. Frequent in untrodden parts of Clifton and Durdham Downs.

**VAR. cæsia** Sm. = *glauca* Koch.

Leaves rigid, setaceous; whole plant more or less glaucous. A submaritime form, noted on the coast between Portishead and Clevedon! *Miss Livett*; and on Brean Down! *C. Bucknall*.



**1109. *F. rubra* L.** *F. duriuscula* auct. angl. *Hard Fescue-grass.*

Native ; in meadows, pastures, roadside wastes, etc. Common and abundant in various forms. June.

The grass to which the name *rubra* is here applied is the slightly creeping, sub-caespitose form which has commonly borne the name of *duriuscula* in this country. There has been much confusion in the use of these names by botanists generally. On account of variation in its stoloniferous habit many have at times found it difficult to separate this plant from large states of *F. ovina*. But there is a substantial difference in the mode of growth of the two species, as is most clearly explained by Dr. Boswell Syme in *English Botany*.

VAR. ***pruinosa* Hackel.**

**S.** On coast rocks near St. Thomas' Head, and sparingly on the Channel shore at Berrow ; *Rev. E. S. Marshall*.

**1110. *F. oraria* Dum.** *F. sabulicola* Dufour. *F. arenaria* Godr. *Creeping Fescue-grass.*

Native ; on the sea-coast ; local.

June and July.

**S.** Bank of Avon above Rownham Ferry ; *Miss Atwood* in *Swete, Fl.* Among the rocks at Anchor Head, Weston-super-Mare ; *Mrs. Gregory*. Kewstoke Bay, 1901. Sand-hills and loose sand on the shore below Brean Down. "An abundant grass in the open dune plant-associations on the North Somerset coast."—*Dr. C. E. Moss*.

**1111. *F. gigantea* Vill.** *Bromus giganteus* L. *Tall Brome-grass.*

Native ; in woods and shaded hedges where there is a good deal of undergrowth ; rather common. July and August.

**G.** Clifton Down. Shady bank of the Frome near Stapleton. Henbury. Filton, towards Stoke Gifford. Moorend. Bank of Avon near Hanham Ferry. Copses at Over and near New Passage. Wood between Winterbourne and Coalpit Heath. Cowhill. Littleton-on-Severn. Plentiful about Charfield, Cromhall and Tortworth. Wotton-under-Edge.

**S.** Leigh Wood ; *D. Fry*. Wood-borders in Ashton Park. Thickets on Bedminster Down. St. Anne's, Brislington. Between Abbotsleigh and the Tan-pits. Failand ; *D. Williams*. Flax Bourton. Stockwood. Pensford. Woods between Farrington Gurney, Hinton Blewett and Litton ; *D. Fry*. Hedges about Norton Malreward, Stanton Drew and Featherbed Lane ; *Id.* Clapton. Walton-in-Gordano. Frequent about Clevedon. Congresbury. Wrington. Cheddar ; *J. G. Baker*. Hutton ; *St. Brody*. Wells. Cateott Burtle ; *Fl. Som.* In woods and hedges near Bath, rather common.

**1112. *F. arundinacea* Schreb.**

Native ? by or near tidal waters ; very rare.

July and August.

**G.** A few clumps by the Avon tow-path near Hanham. Two large tufts on a bank of shingle at New Passage: first noticed by the author in 1908. It is unlikely that these had been long established. Possibly they were derived from the Wye valley on the opposite side of the Severn, where this plant is abundant on banks of the tidal river near Tintern and the Wynd Cliff.

A critical species, or quasi-species, according to the individual view. To me this is certainly a distinct plant, though it may be that intermediates exist connecting it with *F. elatior*. The following characters—of the Avonside gathering—seem to carry it well away from the next species. A large, coarse plant 4 to 5 ft. high, with broad and extremely scabrid leaves. Lower leaves 11 mm. broad. Lowest panicle-branches with more than ten spikelets. Spikelets 15 mm. long with about seven flowers, and the upper glumes equalling two-thirds of the contiguous flower. The mode of flowering, too, is somewhat dissimilar from that of *F. elatior*.

**1113. *F. elatior* Sm. Tall Fescue-grass.**

Native; on bushy waste ground, hedgebanks and ditchbanks. Rather common, especially in the lowlands. June and July.

**G.** Marsh under Ashley Hill. St. Philip's Marsh. Bank of Avon at Hanham and Conham, and again below Bristol, plentiful. Filton Meads. By the Frome near Stapleton. Pilning. Alveston. The Passages. Chipping Sodbury. Tortworth. Hawkesbury. Hillsley. Generally plentiful on roadside banks and field-borders on the high ground N.E. of Lansdown; where many plants of this species produce only a single stem from each root.

**S.** Bank of Avon near Keynsham and Brislington, and here and there lower down the river, growing in very large tufts on the edge of the tideway. Some fine specimens gathered below Bristol were distributed by me as *arundinacea* many years ago and have not been challenged. I would now place them here. By the roadside between Pensford and Stanton Drew. Kenn Moor. Yatton. Cheddar, 1902. Frequent on ditchbanks in the lowlands about Brent, Highbridge and Burnham. Wells. St. Catherine's and the Oakford valley above Batheaston. Charny Down; *L. Blomefield*. Combe Down; *Fl. Bathon*.

**1114. *F. pratensis* Huds. Meadow Fescue-grass.**

Native; in moist meadows, pastures and roadside wastes; rather scarce close to the city, but more frequent in the outlying portions of the district.

June and July.

**G.** Meadows between Sea Mills and Sneyd Park. By the Boiling Well; *Dr. H. O. Stephens*. Horfield. Cribb's Causeway. Stoke Gifford. Tockington. Elberton. Abundant in mowing grass near "The Lawns," Alveston. Codrington. Bitton. Pucklechurch. Charfield. Falfield.

**S.** Ashton Fields. Long Ashton. Brislington. Maes Knoll. Barrow Gurney. Meadows near Stanton Drew, typical and plentiful; *D. Fry*. Corston. Compton Dando. Stowey. Bishop Sutton. East Brent. Burnham. Catcott Burtle; *Fl. Som*. Common about Bath; *Fl. Bathon*.



VAR. *lioliacea* Huds. *F. pratensis* X *Lolium perenne*. *Spiked Fescue-grass*. In rich alluvial meadows, as a rule; often growing with the parents.

**G.** Pastures about Redland; *Dr. H. O. Stephens*. Between Redland and Horfield, 1884 and 1899. Henbury, 1838; *Herb. Powell*. Still there, 1909. Meadows between Lawrence Weston and Avonmouth. Hanham; *D. Fry*. Kingswood near Wotton-under-Edge.

**S.** Bedminster and Bishport; *Swete, Fl.* Brislington. Abundant in a meadow at Stanton Drew. Portishead. Rather plentiful about Corston, and in Avonside meadows between Saltford and Twerton; *D. Fry*. Burnham, abundant in mowing grass at the back of the Cemetery. Frequent in moist meadows; *Fl. Bathon*.

In the same fields with the hybrid there is generally found another grass very much like it, which is a simply spiked or racemose form of *F. pratensis*. It is not at all a starved or depauperate plant, but merely differs as stated. It is to be distinguished from the hybrid by its spikelets not being truly distichous; and by the glumes, which are identical with those of *pratensis*. Prof. Hackel, in his Monograph of the European *Festucæ*, calls this variation VAR. *pseudolioliacea*. A state of it with the lower part of the raceme more or less branched is *forma suprapratensis* Hackel, and, of course, is a connecting link with the type. As a matter of fact, when tested by cultivation, all three have been known to grow from the same root.

## BROMUS Linn.

1115. **B. erectus** Huds. *Upright Perennial Brome-grass*.

Native; on downs, dry hillsides, wall-tops and hedgebanks; common. Almost too well distributed to justify lists of localities, which might be considerably extended.

June and July.

**G.** Abundant on Durdham Down and the slopes of the Gully. St. Vincent's Rocks. Along the embankments of the riverside railway, rocks and quarried ground, as far down as Shirehampton Station. On banks at Clifton Down Station. Rough pastures between Horfield Common, Filton Meads, and Charlton. Westbury-on-Trym. Henbury. The Frome Valley near Yate and Iron Acton. Almondsbury Hill. Tytherington. Old Down, Tockington. Alveston Common, and abundant in mowing grass towards Itchington. Pucklechurch. In profusion on the slopes of Nibley Knoll, Stinchcombe, and other hills in that neighbourhood.

**S.** Leigh Down. Borders of fields and roadsides near Abbotsleigh and Easton-in-Gordano. Bedminster Down. Abundant on roadside banks about Upper Failand, Wraxall Hill and Tickenham. Upper Knowle, and between Knowle and Brislington; flourishing alike among mowing grass and on the old stone walls. Stockwood. Whitechurch. Hilly fields near Keynsham, Queen Charlton and Publow; *D. Fry*. Pensford, Stanton Drew. Stanton Wick. Chew Magna. Coast between Portishead and Clevedon, and on several of the Clevedon hills. Hill pastures on Mendip in many directions. Wookey.

Wells. Great Elm. Combe Hay, Claverton Down, Lansdown, etc., near Bath. The most abundant grass on Steep Holm.

In some of our upland pastures on thin soil, near Alveston for example, *B. erectus* becomes the dominant and only conspicuous grass. At the time of haying its tall feathery panicles seem to fill the fields, and as the whole glistening mass undulates in a summer breeze the effect is very beautiful.

The distribution of the species about Bristol is in strong contrast with its extreme rarity in Devon, Cornwall, Hants and Dorset, where it seems to be entirely absent from very large areas.

VAR. *villosus* Bab.

Has the lower pale hairy all over.

S. Combe Hay near Bath; *T. Dutton* in *Syme's Engl. Bot.* Easton near Wells; *Miss W. Mayow*.

1116. *B. ramosus* Huds. *B. asper* Murray. *Rough Brome-grass.*

Native; in woods, thickets and damp shady hedges; rather common and generally distributed. July.

1117. *B. sterilis* L. *Barren Brome-grass.*

Native; on old walls, roadsides, and dry waste ground. Very common. July.

1118. *B. madritensis* L. *B. diandrus* Curtis. *Upright Annual Brome-grass.*

Native; on banks and rocky slopes near the Avon below Bristol. Only upon the Carboniferous Limestone; very local but quite abundant.

June and July.

G. St. Vincent's Rocks; scattered along the Downs and at the foot of the riverside quarries as far as Cook's Folly. Several years ago it appeared in quantity on some new roads near Avonmouth Docks; no doubt brought down the river with the road-metal. Kingsweston Hill, 1843; *Herb. Powell*.

S. Bank of Avon under Leigh Wood, opposite the Gloucestershire locality. A patch on waste ground by Portishead Station, 1902. A good deal there in 1910. Wick Lane, Brislington; *Mrs. Russell* in *Herb. Brit. Mus.* and *Herb. Stephens*.

[*B. tectorum* L.

Alien casual.

S. Portishead Station-yard, 1904 to 1907. A few plants on old quarried ground near Twerton, 1903! *Miss Martin*.]

[*B. unioides* H.B.K.

Alien. A native of Central and South America; and having been used as a fodder plant is now widely distributed in other regions of the globe. It is a strong, hardy grass, likely to be met with as a weed in increasing frequency.

G. St. Philip's Marsh, 1897 to 1903. Two plants by the Floating Harbour, 1906. Three or four at Avonmouth, 1909 and 1911.

S. Portishead Station-yard, plentiful from 1900 to the present time. Casual at Twerton, 1897; *S. T. Dunn*.]



**SERRAFALCUS** *Parlatore.***1119. S. secalinus** *Bab. Rye Brome-grass.*

Colonist; a weed of waste and cultivated ground. Rather rare and seldom persistent. June and July.

**G.** St. Philip's Marsh, two or three plants yearly for about thirty years. Bank of Avon under the Downs. Below Cook's Folly; *Miss Worsley* and *T. B. Flower*, 1837 and subsequently. On dredgings deposited in the Black Rock Quarry, 1883-1885. Sneyd Park. Filton Station, one plant, 1904. Plentiful in mowing grass between Warmley and Bitton, 1905. Cornfield at Alveston, 1839; *Herb. Powell*.

**S.** Ashton Avenue; 1906. Failand; *D. Williams*. Portishead Station-yard, 1904-1907. Railway bank, Hallatrow. Roadside, Woodborough. Cornfields, South Stoke; *Rev. L. Blomefield*.

**VAR. velutinus** *Schrader.*

**G.** Quarry at top of the Pembroke Road, Clifton, 1904! *C. Bucknall*. Failand! *D. Williams*.

**1120. S. racemosus** *Bab. Racemose Brome-grass.*

Native; in old moist meadows. Rather common, but only locally abundant. June.

**G.** By the Mariner's Path from Sea Mills to Sneyd Park. Between Westbury-on-Trym and Charlton. Henbury; *Herb. Powell*. Meadows in the lowlands between Avonmouth, Lawrence Weston and Hallen, in profusion. Filton Meads. Cribb's Causeway. Sparingly on lias between Wapley and Codrington.

**S.** Upper Failand. Stanton Drew; Keynsham; Corston and Saltford; *D. Fry*. In profusion near Kelston. Meadows by Tucking Mills near Burnet. Nailsea Moor. Puxton. Lympsham. Cheddar; *J. G. Baker*. East Brent. Burnham. Not very common about Bath; *Fl. Bathon*.

Until recently the distribution of this grass in Britain had been very imperfectly known. In *Topogr. Bot.* Mr. Watson treated *commutatus* as an aggregate that included *racemosus*. He used the latter name with hesitation to designate an introduced plant brought in with foreign seeds; his own knowledge of it being limited to its rare occurrence in Surrey, where he had observed it only in fields of sown grasses, and casually about railway stations. Syme knew *racemosus* and gave a good description in *Engl. Bot.*, but had himself seen very little of it. He thought that the greater part of what had been so called in Britain was doubtless a small state of *commutatus*, while in other cases the name had been applied to the glabrous state of *mollis*. There would be little excuse for any such confusion in this district, where *racemosus* occurs plentifully close to the city. In portions of the rich grazing area that borders the Severn and Bristol Channel—land which has never felt the plough—it is often the prevailing representative of the genus, and is unquestionably native.

From the examination of many specimens during a long period Mr. D. Fry

and I conclude that the characters given by Syme and Boreau are stable, and that *racemosus* is perfectly distinct both from the glabrous variety of *mollis* and from *commutatus*. So far as our experience goes it appears that the lower pale "uniformly rounded at the sides from the base to the apex," as described by Syme, and by Babington in his seventh and eighth editions, is a characteristic mark of *racemosus*. In the ninth edition of the *Manual* the pale characters formerly ascribed to *racemosus* and *commutatus* have been transposed. We have occasionally found the lower pale slightly broader above the middle, but never presenting any decided angle.

Mr. G. C. Druce, in *Fl. Berks*, quotes an opinion of Prof. Hackel, given on a series of Oxfordshire examples, to the effect that the differences between *racemosus* and *commutatus* are too weak, and the intermediates too numerous, to allow of their separation as good species. Still, as regards the plants of this neighbourhood, it must be stated that Mr. Fry and I have not met with any such intermediates; and my friend, in particular, studied this section very carefully.

**1121. *S. commutatus* Bab. Confused Brome-grass.**

Native; on field borders, roadsides and meadow land, less often on cultivated ground; rather rare. June and July.

**G.** Bank of Avon under Sneyd Park, 1904. Horfield; *G. H. K. Thwaites* in *Sweete, Fl.* In mowing grass near Hallen. Meadow between Stoke Gifford and Patchway. Abundant in meadows between Great Stoke and Northwoods. Field border near "The Lawns," Alveston. Coarse pasture by Lyde Green. Corner of field at Codrington. With *Hordeum nodosum* it forms a considerable portion of the herbage in some fields near the Boyd, between Pucklechurch and Hinton. Charfield. Wickwar.

**S.** Cultivated fields near Queen Charlton, Keynsham and Chewton Keynsham; *D. Fry*. Sparingly at Stanton Drew; *Id.* Between Burnet and Compton Dando. Lane below Ursleigh Hill, 1905. Meadows between Chew Magna and Dundry. Meadow at Kelston. Corners of fields in Middle Burnham; *D. Fry*. Between Wells and Glastonbury. Cornfields on Lansdown; *T. B. Flower*.

**1122. *S. mollis* Parl. Lop-grass. Soft Brome-grass.**

Native; in meadows, waste ground, grassy waysides etc. Very common and abundantly distributed throughout the district. May and June.

**VAR. *glabrescens* Grenier.**

**G.** Bank of Avon near the mouth of the Gully. Quarry at top of the Pembroke Road, Clifton, 1904. St. Philip's Marsh. Meadows at Stoke Bishop. About Hanham and Kingswood. Plentiful near Warmley Station, 1888. Railway cutting, roadsides and meadows near Patchway. Winterbourne. Tytherington. Horton.

**S.** Roadside, Abbotsleigh. Frequent at Brislington, Corston and Keynsham; *D. Fry*. Meadows at Stanton Drew. Wrington. Congresbury. Berrow. Burnham.



[*S. patulus* Parl.

Alien casual.

**G.** St. Vincent's Rocks, 1869; W. T. Thiselton-Dyer in *Herb. Brit. Mus.* Three plants in St. Philip's Marsh, 1904.

**S.** Portishead Dock, 1907 to 1909.]

**1123. *S. arvensis* Godr. Field Brome-grass.**

Colonist or casual; in cultivated and waste ground, or by railways and roadsides, usually introduced with seed. Rare. A strikingly beautiful grass.

July.

**G.** Bank of Avon under the Downs, 1880 and 1887. On dredgings deposited in the Black Rock Quarry, 1883 and 1884. On the quay near Prince St., 1882. Colliery waste heap near Warmley, 1884. Hanham Abbots, by the roadside; and rather plentiful in a turnip-field by the Avon below Hanham Mills, 1886 and 1890. Railway bank near Filton Station, 1906! *C. Wall.* In profusion on made ground by the Royal Edward Dock, 1910. Plentiful in a field of Sainfoin on Milbury Heath, about a mile from Thornbury, 1910! *C. Bucknall.*

**S.** Rough pasture on the Leigh Court estate, in some quantity 1905; but I could find none there the summer following, although the field remained in the same state. Clover-fields, Whitechurch, 1883; *Rev. W. H. Painter.* Cornfield between Bedminster and Bishport. Clover-field, Bath, 1860; *Herb. Flower.* Casual at Twerton, 1897; *S. T. Dunn.* Swainswick; *Rev. L. Blomefield.* Near Warleigh; *Fl. Bathon. Suppl.*

"This grass has within the last few years become common in Gloucestershire and Wilts, doubtless introduced with foreign Rye Grass and Sainfoin seeds."—*J. Buckman* in *Wilts Archæol. Mag.* vol. ix (1857).

**BRACHYPODIUM** *Pal. de Beauv.*

**1124. *B. sylvaticum* Beauv. False Wood Brome-grass.**

Native; in woods and hedgerows. Very common and abundant. July.

**1125. *B. pinnatum* Beauv. Barren False Brome-grass.**

Native; on calcareous hills; rare. July.

**G.** St. Vincent's Rocks; *Bot. Guide* (1805), and *G. H. K. Thwaites* in *Swete, Fl.* Rocky bank behind the Engine House, near the Black Rock; *Miss Atwood.* Gorge near Black Rock; *Herb. Stephens.* These records doubtless all refer to the same station. The plant was apparently lost for many years, until 1897, when it was rediscovered by Mr. Bucknall and the author on a space of about ten yards square. Stinchcombe Hill, abundant; and in many spots on the hills above Wotton-under-Edge and Dursley.

**S.** Cadbury Camp, 1895; *C. Bucknall.* Plentiful at the Fir Wood and Strawberry Hill, Clevedon. On the southern face of Wavering Down it covers much of the hillside overlooking the hamlet of Cross. Crook's Peak. Lansdown encampment; *J. G. Baker.* Charlcombe, Bath; *Herb. Flower.* Bathampton; *Fl. Bathon. Suppl.*

This grass occurs in patches of a bright yellowish-green colour. At the flowering period this brilliant tint contrasts strongly with the brownish hue of the turf around, and renders the spots conspicuous at a long distance.

A slender form of the species with small spikelets and very narrow leaves is mentioned by Lowe, *Nat. Hist. Brit. Grasses*, ed. iii (1891), under the name of *cæspitosum*, as having been found near Bath. This is probably the *var. gracile* of Parnell, *Brit. Grasses*, p. 292, tab. 133.

[*Aegilops ventricosa* Tsh.

Alien casual. Three plants in St. Philip's Marsh, G., 1904; and several at Portishead, S., 1906-7.]

### TRITICUM Linn.

#### 1126. *T. caninum* L. *Wood Couch-grass.*

Native; in thickets, wood borders and shady lanes; rather common. July.

**G.** Sparingly in thickets on Clifton Down. Combe Dingle! *E. Wheeler*. Near Sea Mills! Henbury and Alveston; *Herb. Powell*. Bushy slope by the Frome near Stapleton, 1906. By the Avon near Hanham Ferry. Cleve Wood, Bitton. Lane leading to the old mill at Iron Acton. Upton Cheyney, on roadside banks. Wood border above Wotton-under-Edge; and hillsides near Dursley.

**S.** St. Anne's, Brislington. Bushy spot near Providence, above Long Ashton. Frequent in hedges at Newton St. Loe. Failand! *D. Williams*. Keynsham, Queen Charlton, Marksbury and Featherbed Lane near Clutton; *D. Fry*. Abundant on the left bank of the Avon above Saltford, between the river and railway embankment. Portishead. Woods at Walton- and Weston-in-Gordano. Borders of King's Wood towards Congresbury and Yatton. On Nyeland Batch, plentiful! *C. Wall*. Crags on the north face of Shuteshelve, sparingly. Woodside, Axbridge. Ebbor Rocks and Wookey Hole; *J. G. Baker*. Bushy hedgebank near Nettlebridge; *Fl. Som.* Langridge Lane; *Rev. L. Blomefield*. Batheaston; *Fl. Bathon. Suppl.* Riverside, Batheaston, 1874; *Herb. Flower*. Conkwell. Wood border above Hampton Rocks, 1907; *Miss Peck*.

Thinly distributed, no doubt; but still far more common with us than in many parts of the country.

#### 1127. *T. repens* L. *Common Couch-grass.*

Native; in cultivated ground, hedges and waste places. Common and generally distributed. June to August.

The long-awned variety—*barbatum* Duval-Jouve = *Leersianum* S. F. Gray—is not uncommon. It has been remarked at Portbury, Banwell, Congresbury, Uphill and Wells in Somerset; and at Hallen, Patchway and Upton Cheyney in Gloucestershire.

A maritime form with attenuate subulate glumes and shortly awned palea, from the Burnham and Berrow sand-hills, may be the *var. Vaillantianum* Schrank.



**1128. *T. pungens* Pers.** *Erect Sea Couch-grass.*

Native; on the banks of tidal rivers, and in muddy wastes near the Channel. Locally common. It extends up the Avon estuary as far as Conham, above Bristol; and on the open coast southward to Burnham and Steart.

July and August.

The *T. pungens* of this district is mainly, if not entirely, referable to two forms—the normal plant with its var. *pycnanthum* Gren. & Godr., which have obtuse or sub-obtuse glumes and palea; and an awned variety, *aristatum* Warren = *T. littorale* Host. Both these occur in plenty.

They who desire a more intimate knowledge of this variable species may be advised to consult a paper by the Hon. J. L. Warren in *Journ. Bot.* xii, p. 357; and those by M. Duval-Jouve in *Mémoires de l'Académie de Montpellier*, vol. vii.

**1129. *T. acutum* DC.** *Decumbent Sea Couch-grass.*

Native; by the estuaries, chiefly in loose sand. Rare, or badly understood. Suspected to be a hybrid, *repens* X *junceum*.

July and August.

**G.** Bank of Avon, under Cook's Folly (as *T. laxum* Fr.), authenticated by Mr. J. G. Baker; *Miss Atwood in Sweete, Fl.* It cannot now be found.

**S.** Rownham Ferry; *Miss Atwood, loc. cit.* Kewstoke sands. Berrow. Burnham.

In *Report Bot. Ex. Club*, 1897, Prof. Hackel writes:—" *Triticum acutum* is more correctly named *T. laxum* Fries; though this name applies to a form with more distant spikelets. *Triticum acutum* DC. from Southern France is not quite the same as *T. acutum* of northern botanists, and therefore I should prefer the name of *T. laxum* Fries; or write *Agropyron acutum* R. & S. var. *laxum* Fries sp."

**1130. *T. junceum* L.** *Sand Couch-grass.*

Native; on the coast sands of North Somerset near Kewstoke, Weston-super-Mare, Brean, Berrow and Burnham. Locally common.

July.

Dr. St. Brody, in his Gloucestershire collection, "reports" this species from New Passage, G. It is likely enough to have grown at some former period on the sand or shingle that exists near the Passages, but nothing has been heard of it in my time.

Describing the sand-dune vegetation between Brean and Burnham, Dr. C. E. Moss writes as follows:—" *Association of Sea Couch-Grass.*—Behind the lines of *débris* and strand plants, an association of sea couch-grass (*Agropyron junceum*) often occurs. The sea couch-grass is usually the first plant to establish itself on the drifting sand; and if the association of strand plants be absent, then the sea couch-grass association is the one first encountered in traversing the sea-shore from the littoral zone to the dunes. The sea couch-grass possesses vigorous underground stems which bud and sprout freely, and thus the plant is of service in fixing the low-lying, shifting sands of the shore. The plant may be buried under a subsequent accumulation of sand, but the underground

\* *Geographical Distribution of Vegetation in Somerset*, p. 10.

shoots rapidly grow upwards, and reappear in the same place as before. The process of burial and reappearance may be repeated several times; and thus the accumulating sand becomes higher and higher, and an incipient or embryonic dune is formed. . . . The sea couch-grass association is found on soil entirely sandy, very loose, very dry, never washed by the sea, though often shrouded in spray . . . . The plants are not thickly carpeted, bare patches are frequent; competition for space is not keen; and generally the association is one of the open type."

### ELYMUS Linn.

#### 1131. *E. arenarius* L. *Sand Lyme-grass.*

Native; on the sandy shore of the Bristol Channel. Very rare, and with no permanent station. July and August.

**S.** Burnham, Berrow, and Steart; *J. C. Collins, mss.* in *New Bot. G. Suppl.* (1837). On this Mr. Watson's comment was "Not very unlikely, yet seems to require confirmation." Mr. T. B. Flower wrote in *Journ. Bot.* 1886, p. 307:—"The Rev. J. C. Collins, St. John's Vicarage, Bridgwater, collected it on the high sand-hills between Burnham and Brean Down. I observed a specimen in his herbarium in 1853, gathered in that locality. I have also seen it on the same tract of sand-hills, but very sparingly; and may add that *E. arenarius* was likewise gathered at Burnham in 1870 by Mr. Cosmo Melvill." Cove on the coast near Woodspring Priory, Aug. 1880. At that date there was a small patch of about a dozen stems on shingle above high-water mark. I saw it again in 1881, but shortly afterwards cattle made their way down a low cliff at the back and trampled a path over the spot. Very sparingly near Sand Point, 1890; *Rev. T. Allin* in *Fl. Som.* In the sand between Weston Esplanade and Brean Down, 1898; *Miss Mules* in Murray's MS.

Dr. C. E. Moss has included this among the "occasional species" of dune-pasture associations in North Somerset (1906); and as the name is not within inverted commas I take it that he saw the plant himself during his examination of the Brean and Burnham shores.

#### [*E. caput-Medusæ* L.

Alien casual, from Southern Europe.

It occurred on rubbish in St. Philip's Marsh, G., in 1900, and again in 1904.]

### HORDEUM Linn.

#### 1132. *H. sylvaticum* Huds. *Elymus europæus* L. *Wood Barley.*

Native; in woods on oolitic hills; very rare. July and August.

**G.** First found in this district by Mr. C. Bucknall in Westridge Wood, Wotton-under-Edge, July, 1897! In 1898 Mr. D. Fry and I met with it in fair quantity along the edge of beech woods overlooking the town of Dursley; and at Woodmancote in the same neighbourhood.

An elegant, dainty grass, occurring in small tufts of two or three stems well separated from each other; always in full shade and often under beeches, where scarcely any ground vegetation can exist.



**1133. *H. nodosum* L. *H. pratense* Huds. *Meadow Barley.***

Native; in meadows and grass-fields, chiefly near the coast; common. Extremely abundant in lowland pastures near the Severn and Channel, forming a considerable portion of the crop. July and August.

**G.** Meadow by the Avon under Sneyd Park. Sea Mills. Shirehampton. Henbury. Meadows near Hanham and near Bitton. Alveston. Pilning. Hallen Marsh. The Passages. Ingst. Littleton-on-Severn. Sheperdine. Between Pucklechurch, Hinton and Dyrham, in great abundance. Charfield. Rangeworthy. Berkeley.

**S.** Bedminster Meads. Long Ashton. Bishopsworth. Chelvey. Nailsea Moor. Yatton. Clevedon. Between Portbury and Portishead. Keynsham. Queen Charlton. Publow. Bishop Sutton. Wells. Plentiful in the lowlands about Brent Knoll, and near Brean, Berrow and Burnham. Wookey and Yarley; *Fl. Som.* Common about Bath.

**1134. *H. murinum* L. *Wall Barley.***

Native; by roadsides and in dry waste places; more common than formerly. June and July.

Stated by Sole not to have been observed at Bath before the end of the eighteenth century.—*Jenyns' Lecture.* In the *Fl. Bathon.* it was said to be "not uncommon on waste ground;" but Babington corrected that error in the *Supplement.* *H. murinum* is still rare near Bath. The specimen in *Herb. Jenyns* is from Bitton churchyard, 1868.

**1135. *H. marinum* Huds. *H. maritimum* With. *Sea Barley.***

Native; on sea-banks and roadsides near tidal waters, and in salt-marshes. Rather rare and local. June.

**G.** Bank of Avon below Bristol, from Sea Mills to Avonmouth, where it has latterly been very abundant about the Docks. Here and there along the sea-banks between Avonmouth and New Passage.

**S.** Portbury Wharf, in small quantity 1905. Sea-banks near Clevedon. Weston-super-Mare, on the shore towards Uphill. Salt-marsh at Uphill, 1904. Coast between Brean Down and Burnham. By the Brue below Highbridge; *H. S. Thompson.*

**LEPTURUS R. Br.****1136. *L. filiformis* Trin. *Sea Hard-grass.***

Native; in maritime pastures and on ditchbanks in salt-marshes; sometimes it fringes the edges of muddy estuaries. Common in such situations.

July and August.

**G.** By the New Cut near Bath Bridge and the General Hospital. Plentiful on the verge of the mud-banks near Rownham Ferry. Bank of Avon below Clifton at intervals down to Shirehampton and Avonmouth. Severn Road, New Passage; *Miss Roper.*

**S.** Bank of Avon at Rownham. Clevedon Beach, in fair quantity; and on the mud-flats outside the sea-bank below Clevedon; *D. Fry*. Sands west of Weston-super-Mare. Uphill. Bank of rhine under Brean Down. Formerly in a salt-marsh at Berrow. Ditchbanks and salt-marshes between Burnham and Highbridge, on the banks of the Brue.

Earliest local records:—" *Rotboellia incurvata*; circa Bristoliam, 1780."—*Dr. J. Sibthorp*. "Salt-marsh below King's Weston, near Bristol."—*Dr. Stokes* in *Withering* (1796).

Our wild seaside plant, with slender, nearly straight spikes, was formerly called *Rotboellia incurvata* Linn. fil., or *Lepturus incurvatus* Trin. by British botanists generally. But the true S. European *L. incurvatus*, abundant on Mediterranean shores, is considered to be only an alien casual in this country; introduced, according to Nyman, with ships' ballast. It is a stiffer, stouter grass, with strongly curved spikes. We have had large patches of it from time to time on rich waste ground in St. Philip's Marsh, G.; and by Portishead Dock, S.

### LOLIUM Linn.

#### 1137. *L. perenne* L. *Common Rye-grass*.

Native; in meadows, pastures and roadside wastes. Very common and generally distributed. One of the most valuable fodder grasses. June and July.

Abnormal forms or monstrosities are not uncommon. The most frequent is a curiously broad, crowded, curved or contorted condition of the spike; caused by an irregular shortening or suppression of the internodes of the rachis.

In loose sea sands near Kewstoke and Burnham I have several times noticed that *L. perenne* has assumed a stoloniferous habit.

[*L. italicum* A. Braun. *Italian Rye-grass*.

Alien; with a tendency to become naturalized. Has been commonly sown as a fodder grass for many years past, and so occurs frequently among mowing grass, in waste corners, and on roadsides. It has no claim to be considered more than an introduced plant.]

[*L. multiflorum* Lamark.

Alien; in cultivated fields and waste ground; rather rare. Of much stronger growth than the Common Rye-grass, and distinct from both it and *L. italicum* in being annual, without barren shoots. It has a very scabrid rachis. June and July.

**G.** Riverside path under Sneyd Park, 1905 to 1909. St. Philip's Marsh, 1908. Fallow field near Winterbourne Church, 1909! *C. Bucknall*. Fallow between Olveston and Ingst.

**S.** Roadside near Portbury Station, 1907. Neglected cultivation at Weston-in-Gordano. By farm buildings under Duncorn Hill, 1910.]

#### 1138. *L. temulentum* L. *Darnel*.

Alien or Colonist; on rubbish-tips, waste ground, and in cultivated fields; rare. July and August.

**G.** Prince St., Bristol, 1883; *E. Wheeler*. Roadside, Sneyd Park, 1884. St. Philip's Marsh, on rubbish, 1902, both the awned and awnless varieties. Cornfields, Alveston; *Herb. Powell*. Wotton-under-Edge; *V. R. Perkins*.

**S.** In the hedge of a meadow at Stanton Drew, 1887; *D. Fry*. Barley field near Nailsea, 1880. Roadside, Kenn, 1881. Portishead Station-yard, 1906! *Miss Livett*. Twerton, 1897; *S. T. Dunn*. In several cornfields near Bath; *Fl. Bathon. Suppl.* Norton St. Philip; *T. B. Flower*.



## CRYPTOGAMIA.

## EQUISETACEÆ.

## EQUISETUM Linn.

1139. *E. arvense* L. *Corn Horse-tail*.

Native; in undrained fields, banks and roadsides; common.

April.

1140. *E. maximum* Lam. *E. Telmateia* Ehrh. *Great Water Horse-tail*.  
 "Snake pipe;" N. Somerset.

Native; in wet woodland, shady hedge-bottoms, etc. Rather common.

April.

**G.** By water under Ashley Hill at the Boiling Well and Baptist Mills. Westbury-on-Trym. Hedge-bottoms between Eastfield and Filton. On both sides of a farm road between Charlton and Patchway. By the old tramway that runs from collieries through Bitton to the Avon. By the Boyd in the Golden Valley. Hedge-bottom by Yate Rocks; *Miss Roper*. Abundant by a streamlet between Horton Church and Hawkesbury.

**S.** Wet hollow under Leigh Woods below Rownham. By the railway between Whitechurch and Pensford. Lane on Maes Knoll. Barrow Gurney. Chew Magna. Wet roadside between Wrington and Langford. Yatton. Clevedon. Honey Hall, Brinsea, etc., north of Churchill. In the watery lane by old Max Mill, and in Max Bog near Winscombe. Roadside between Cheddar and Draycott, and at Lodge Hill; *J. G. Baker*. Near Kewstoke. On both sides of the way from Worle to Woodspring Priory. Crox Bottom, Gurney Slade. Burnham; *W. B. Waterfall*. Englishcombe. Spring-head between Midford and Hinton Charterhouse. Frequent in boggy places in the Oakford valley and elsewhere about Bath.

I once gathered, at the Leigh Wood station, two fertile stems on which the terminal spikes were divided one into five and the other into eight erect branches. A similar variety or monstrosity "with the branches compound" was noted near Bath by Mr. T. B. Flower.—*Phytol.* I, p. 967.

"*Equisetum maximum* = Foxtailed Asparagus, Glouc. We find the explanation of this curious name in Lyte [1578], who aptly calls the fertile spikes of the Equiseta and especially those of this species 'Asparagus,' which they sufficiently resemble. In the MS. notes in his copy of Dodoens (*Bibl. Brit. Mus.*) Lyte has written against the figure of the fertile frond of this plant: —'The shutes or asparagus of the Greater Shave-grasse;' and in his Herbal

he speaks of 'those asparagus shutes or stemmes.' "—*Dict. Engl. Plant-names* by Britten and Holland.

**1141. *E. sylvaticum* L.** *Wood Horse-tail.*

Native; but doubtfully present in the district.

April and May.

Inserted by Babington in *Fl. Bathon. Suppl.* (1839) as found by Miss Lonsdale in "damp places near Batheaston." Flower also noted it as occurring near Bath, but he gave no locality. Confirmation, by specimen or otherwise, of Miss Lonsdale's record, is entirely wanting. The East Woodlands locality near Frome (*H. F. Parsons* in *Fl. Som.*), is a mile or more outside our limit. It is not unlikely, however, that the plant may some day be met with again within the area.

**1142. *E. limosum* L.** *Smooth Horse-tail.*

Native; in ditches and shallow, stagnant waters; rather common in the lowlands of North Somerset.

June and July.

**G.** Horfield; *Swete, Fl.* Itchington Moor. Aust. Between Thornbury and Littleton-on-Severn.

**S.** Pond near the lodge in Leigh Woods [now drained]; *Herb. Stephens.* Bedminster Meads; *Swete, Fl.* Plentiful below the reservoirs of the Bristol Water Company near Barrow Gurney, 1881–1900; now scarce. Marshes below Portbury. Peaty ditches by Walton Drove near Clevedon. Moor ditches near Nailsea, Yatton and Tickenham. Very plentiful in the marshes of the Cheddar Valley; near Wedmore; and on the peat moors. Marsh by the railway on the left bank of the Avon above Keynsham; *C. Bucknall.* Abundant in Houndstreet Lake; *D. Fry.* Streamside, Gurney Slade. Ponds on Mendip; *Fl. Som.* Bog near St. Catherine's; *Rev. L. Blomefield.* In the canal near Bath.

**VAR. *fluviatile* L.**

**S.** Marsh by the Avon above Keynsham, with the type! *C. Bucknall.* Tickenham Moor; *Miss Livett.* Houndstreet Lake, in profusion; *D. Fry.* Kewstoke; *Id.*

**1143. *E. palustre* L.** *Marsh Horse-tail.*

Native; in damp meadows, marshes and boggy places; rather common.

June and July.

**G.** Marsh at the Boiling Well. Filton Meads. Hallen Marsh. Itchington Moor. Rockhampton. Falfield. Wickwar. Alderley.

**S.** By the Abbot's Pond, near Abbotsleigh. Upper Failand. Bedminster Meads. By the Land Yeo at Ashton Watering. Nailsea. Yatton. Clevedon. The Max meadows near Winscombe. Hinton Blewett. Litton. Chewton Mendip; *Fl. Som.* Abundant in marshes along the course of the Chew; at Stanton Drew, Pensford and Compton Dando. Edford. Gurney Slade. Wells. Between Weston-super-Mare and Hutton. Ditchbanks by the coast near Brean and Berrow. Combe Hay. Frequent in boggy places; *Fl. Bathon.*



VAR. *polystachium* Vill.

**S.** By a water reservoir above Portbury; *Miss Roper*. Swamps by the Chew between Stanton Drew and Pensford, 1907. Weston-super-Mare; *Moore's Hist. of British Ferns* (1862). Marshfield Lane near Bath; *T. B. Flower in Newman's List* (1843).

VAR. *nudum* Newm.

**S.** Golf links, Weston-super-Mare, 1896; *Mrs. Gregory*. Sands at Brean; *Moore's Hist. of British Ferns* (1862). By the Lox Yeo near Loxton.

1144. *E. hyemale* L. *Rough Horse-tail. Dutch Rush.*

Native; in damp sand; very rare. July and August.

**S.** Abundant in a sandy field to the south-west of the loop-line at Weston-super-Mare, where it was first observed, as I understand, by Mr. Corder of Taunton in 1900. This is the only locality known in the county of Somerset. The plant was not mentioned by Dr. St. Brody in his *Flora of Weston* (1856). It was reported in the *Fl. Bathon. Suppl.* by Dr. Davis as occurring on the canal bank near Bath; but the record was never confirmed, and was regarded as a misnomer by the author of *Fl. Som.*

*E. hyemale* is a strictly local plant, sparingly distributed in Britain: almost unknown in the midland and south-western English counties and entirely absent from Wilts, Dorset, Hants and Sussex.

1145. *E. variegatum* Schleich.

Native; on the coast in damp sand; very rare. July and August.

**S.** Near Weston-super-Mare, in some plenty with the last species. Discovered at the same time by Mr. Corder. Prior to that date there was nothing to connect the plant with this district or with the county, beyond a queried reference in *Topogr. Bot.* "Som. north? '*arenarium*.'" The source of that doubtful record is uncertain, but Mr. A. Bennett thinks it came from Newman in the *Phytologist*, about 1845-6.

Damp dune hollows north of Burnham; rare, 1904; *Dr. C. E. Moss*.

I have not seen Dr. Moss's gathering. He named it simply *variegatum*, and I leave the whole under the aggregate. Some botanists have identified the Weston plant with the varieties *majus* and *arenarium*; but others give excellent reasons why it cannot be referred to either. See *Reports Bot. Ex. Clubs*.

*E. variegatum* is essentially a northern plant. It occurs in Devonshire, but there is no third station south of the Bristol Channel on the west, or Norfolk on the east of England.

Horse-tails have been commonly regarded as possessing innocent properties of no importance from a medicinal point of view. It has even been suggested that the roots, which contain a good deal of starch in winter, might be useful when food is scarce. One reads with some surprise, therefore, the following statement in *Botany of To-day*; Scott Elliot, 1910. "Even in Britain many really poisonous plants still exist. In lochs, marshes and elsewhere, the

poisonous Equisetums (*palustre*, *silvestre* and *arvense*) are by no means rare. These species had ancestors in the coal-measure days, who no doubt protected themselves against whatever animal ate their foliage, by similar poisons."

## FILICES.

## POLYPODIUM Linn.

1146. *P. vulgare* L. *Common Polypody.*

Native; on shady banks, walls and old trees; very common.

August to October.

VAR. *bifidum* auct.

**S.** Nightingale Valley, Leigh Wood; *W. E. Green*. Two clumps in a wood near Stowey; *R. V. Sherring*. Pylle, by Shepton Mallet; *Miss Roper*.

VAR. *serratum* Willd.

**G.** Shirehampton; *Dr. Mackay*. With the type at Bristol; *T. B. Flower*.

**S.** "Polyp. majus serrato folio. Gathered by Dr. Littleton Brown between Bath and Wells;" *Herb. Dillenius*. Fine on old trees in Leigh Wood; *Leo H. Grindon*. Cheddar; *H. C. Watson* in *Phytol.* I, p. 964. Ashton Manor Woods; *Miss Atwood* in *Swete, Fl.* Norton's Wood by Clevedon; *W. E. Green*.

VAR. *semilacerum* auct.

Has the lower half of the frond a second time lobed; the upper half being normal and usually fertile.

**S.** Cheddar Cliffs; *Moore's Hist. Brit. Ferns* (1862).

VAR. *cambricum* Willd.

Frond doubly pinnatifid.

**G.** Near Downend; *S. Freeman* in *Phytol.* I, p. 328 (1841).

**S.** Near Dundry Church; *Swete, Fl.*

1147. *P. Phegopteris* L. *Beech Fern.*

Native; on the margin of a rill; very rare.

July to September.

**S.** Fine and plentiful in a damp mossy dell near Wells, 1883 and 1884.

1148. *P. Dryopteris* L. *Oak Fern.*

Native; in rocky woods; very rare. We have reason to fear it is not now an inhabitant of the district.

June and July.

**S.** In Leigh Wood, rare; *Shiercliff's Guide* (1789). Leigh Wood, occurring rarely; *Stephens Cat.* (1835). *Ibid.*, 1839; *T. B. Flower*. "Rocky places on the Mendip Hills, Bristol and Bath; *T. B. Flower*;" quoted by Edw. Newman



in a list of Somerset Ferns. Ebbor Gorge; *Theod. Compton*. The next species was possibly mistaken for it. Widecombe House, Bath; *Sole* in *Bot. Guide* (1805). Reported also from other spots in North Somerset on doubtful authority.

In conversation Mr. Flower has explained to me that this fern formerly grew with some others in a damp hollow, then known as "Fern Glen," near Rownham. The ferns were not there when I searched for them, and the place is now enclosed.

**1149. *P. Robertianum* Hoffm. *P. calcareum* Sm. *Limestone Polypody*.**  
Native; on limestone; rare and local. May to August.

**S.** In Leigh Wood, rare; *Shiercliff's Guide* (1789). Leigh Wood, 1843; *T. B. Flower*. I understand that before the construction of the Suspension Bridge and its approaches, the high ground on the Leigh side, above Nightingale Valley, was a limestone heath and that *P. Robertianum* grew among the loose stones. There is no more recent record for the locality. Goblin Combe, near Cleeve Toot. Brockley and Burrington; *Winscombe Sketches*. Plentiful on the screes in Cheddar Gorge. Ebbor Gorge, probably planted and now gone; *Miss Livett*. Mells; and Chewton Mendip in small quantity; *Fl. Som.* Many plants on lias ledges in the G.W.R. cutting near Saltford: pointed out to Mr. Fry in 1894 by C. Withers, a ganger on the line. Not native in that situation, but probably brought along the railway by traffic from some limestone locality. Established on the supporting wall of a platform at Congresbury Station! *Miss Roper*. An eccentric position for the fern, but a similar occurrence of *P. Dryopteris* is reported in the *Flora of Cheshire*. There is no doubt that railways do much in distributing many species. Walls below the canal between Bath and Batheaston; *S. T. Dunn*.

#### LASTREA Presl.

**1150. *L. Thelypteris* Presl. *Marsh Fern*.**

Native; in wet bogs; rare and local.

July and August.

**S.** On the swampy edge of some water-holes in a marsh between Wraxall and Tickenham. Pointed out to me by Mr. Arthur E. G. Way in 1907. Once seen with *Menyanthes* in a boggy spot, screened by shrubs and brambles, on the coast between Portishead and Clevedon; *R. V. Sherring*. I suppose this spot must have been cleared and drained, as we cannot find it. Abundant on the peat moors at the southern limit of the district.

**1151. *L. Oreopteris* Presl. *Sweet Mountain Fern*.**

Native; in woods and on boggy heaths and moorland; rare.

July.

**G.** Henbury; *Herb. Powell*. Conham; *Herb. Stephens* and *Dr. Thwaites* in *Swete, Fl.* Hanham Woods, 1857; *Herb. Jenyns*. Unknown to me in the Gloucestershire division; but is quite likely to survive in one of the Avonside woods.

**S.** Sparingly in Leigh Wood, 1828; *Rootsey's List*; *T. B. Flower*, 1841; *Phytol.* I, p. 70; and *Thwaites*, 1844 in *Newman's List*. I saw two or three roots in the enclosed portion of Leigh Woods in 1891. The plant has no doubt long disappeared from those parts of the wood which are more accessible to the public. It would of course have been eradicated, together with the other ferns which are no longer to be found in the old recorded stations. Ashton Manor Woods; *Miss Atwood* in *Swete, Fl.* Charlton Woods, Portbury, 1883! a small patch which still exists as I am informed by Miss Hill. Two or three plants in Norton's Wood, Clevedon; *R. V. Sherring*. Plentiful in a smallcombe between Cleeve and Brockley. In two boggy hollows near Burrington. Blackdown on Mendip, in combs where streamlets trickle down from upland springs. Especially fine in a dell south of Ellwick Farm. Near Cranmore Tower, where the old red sandstone occurs; *H. F. Parsons*. Kewstoke Lodge, Weston-super-Mare; *St. Brody*.

**1152. L. Filix-mas Presl. Male Fern.**

Native; in woods and shady places; common.

June and July.

VAR. *paleacea* Moore. *Dryopteris Borreri* Newm.

A form with concave pinnules and very scaly stipe and rachis.

**S.** Mendip Hills; Cheddar and Shipham; *Fl. Som.* Eaker Hill Wood, Chewton Mendip! *Miss Roper*.

VAR. *abbreviata* Lam.

**G.** Wyck; *Bab. Man.*

[**L. rigida** Presl.

The plant discovered in 1853 on Hampton Rocks near Bath by the Rev. J. E. Vize, M.A., F.R.M.S. (see *Phytol.* IV, pp. 1101, 1134; and *Trans. Woothope Club*, 1890, p. 119) had been doubtless planted there by a fern collector named Potter, who was well known to make a practice of such planting. It must have soon disappeared, for no one else appears to have seen it. Mr. Flower (*Fl. Som.*) only repeated what he had read.]

**1153. L. spinulosa Presl. Narrow Shield Fern.**

Native; in woods, thickets and bogs; rare.

August and September.

**G.** Glen Frome; *Miss Atwood* in *Swete, Fl.* I fear it may not be there now, unless perhaps in a private policy.

**S.** Leigh Woods; *Swete, Fl.* and *Rev. W. H. Painter* in 1881. On the oolite at Dundry; *Leo H. Grindon*. Typical in a boggy bottom in Lord's Wood, Houndstreet, 1895. Litton Wood; *R. V. Sherring*. Among the hummocks in boggy ground on Mendip, near the Mineries. Frequent in bushy ground on the southern peat moors.

**1154. L. dilatata Presl. Broad Shield Fern.**

Native; in woods and thickets; rather common.

August and September.

**G.** Glen Frome, Stapleton; *Swete, Fl.* and, 1853, *Herb. Jenyns*. Still there in 1903. Shirehampton; *T. B. Flower*. Wood in the Boyd valley below Wyck



Rocks. Dyrham. Horton. Iron Acton. Elberton. Charfield. Tortworth. Lower Woods, Wickwar. Near Berkeley.

**S.** Leigh Woods. St. Anne's Wood, Brislington, 1902. In Fox's Wood by the G.W.R. Charlton Woods, Portbury. Weston-in-Gordano. Very fine and abundant among bracken on the north side of the Court Hill, Clevedon; *Miss Livett*. Norton's Wood, near Clevedon. Houndstreet Woods, near Publow. Hallatrow. Chewton Mendip. Plentiful about Stratton-on-the-Fosse, Nettlebridge, Oakhill and Downhead Common. Gurney Slade. Mells. In the woods about Bath.

VAR. *tanacetifolia* DC.

**S.** Wood in Ashton Park, 1905. Named by the Rev. Augustin Ley.

### POLYSTICHUM Roth.

1155. **P. aculeatum** Roth. *Prickly Shield Fern*.

Native; in woods and shady lanes. Rather rare, and no longer to be found in some of the older recorded stations. July and August.

**G.** Dugar Woods (near Bishopston; now built over), March, 1850, a fine specimen; *Herb. Cundall*. Glen Frome, Stapleton, 1850; *Id.* Hedges near the Zoological Gardens, Clifton; *Dr. H. O. Stephens* in *Swete, Fl.* Blaize Castle Woods; *Herb. Powell*. Hanham and Bitton; *T. B. Flower*. Lane at the top of Bury Hill, north of Yate Rocks. Folly Woods, Dursley.

**S.** Leigh Woods; *Swete, Fl.* St. Anne's Wood, Brislington; *T. B. Flower*. Dundry Hill; *Herb. Stephens* and *Dr. Thwaites* in *Moore's History*. On Failand, rare; *D. Williams*. Watery lane between Pensford and Publow church. Lanes about Stanton Drew, Chew Stoke and Bishop Sutton, with intermediates running into *lobatum*; *D. Fry*. Frequent in the lane leading from Fry's Bottom to Chelwood; *Id.* Portishead Woods. Camerton. Hallatrow. Many fine plants in Eaker Hill Wood, Chewton Mendip! *R. V. Sherring*. And in Ham Woods near Croscombe! *Miss Roper*. Lanes near Compton Martin, N. Widecombe, Leigh-on-Mendip, and Great Elm. Kewstoke; *St. Brody*. Kelston, Claverton, Langridge and one or two other localities near Bath; *T. B. Flower* and *C. C. Babington*.

Earliest local record:—"On Cheddar Cliffs, *Lonchitis aspera major* (not the true *Lonchitis*), July, 1726."—*Dillenius' Diary*. There are still one or two clumps in Cheddar Gorge.

VAR. *lobatum* Sw.

**G.** Blaize Castle Woods; *Herb. Powell*. Shirehampton Woods; *T. B. Flower*. Hedgebank near Frogland Cross.

**S.** "Rocks at Burwell's Wood, facing the hot wells;" *Sole* in *Turner and Dillwyn* (1805). Sparingly in Leigh Wood; at Flax Bourton; and abundant on Dundry Down; *Dr. Thwaites*. Clevedon; *W. E. Green*. Stanton Drew and Bishop Sutton, many typical plants; *D. Fry*. Highbury Hill, Hallatrow;

*R. V. Sherring.* Upper end of Cheddar Gorge. In several places near Bath ;  
*T. B. Flower.*

As Mr. Murray observes in *Fl. Som.*, *lobatum* passes insensibly into *aculeatum*. A similar gradation obtains with all fern varieties. Were it not so ; if an unbridged gap were apparent between the differing forms ; then they would be classed as "species" in my mind.

**1156. *P. angulare* Presl.** *Angular-leaved or Drooping Shield Fern.*

Native ; in woods and shady lanes ; rather rare. July and August.

**G.** Blaize Castle Woods. Stapleton Woods ; *Dr. H. O. Stephens* and, 1853 ; *Herb. Jenyns.* Frenchay. Small wood between Almondsbury and Tockington. Tortworth. Yate Rocks ; *Miss Roper.* Wotton-under-Edge. Dursley, 1865 ; *Herb. St. Brody.* Still there in fair quantity.

**S.** Leigh Woods. Long Ashton ; *Leo H. Grindon* in *Newman's List* (1843). Wood by the Avon near Ham Green. Hedgebanks on Upper Failand. Bourton Combe. Maes Knoll. Between Norton Hautville and Dundry. Plentiful in lanes between Pensford and Woollard. Frequent about Stanton Drew, Stanton Wick and Bishop Sutton ; *D. Fry.* Lane leading from Fry's Bottom to Chelwood ; *Id.* About Hallatrow, and on hedgebanks towards Hinton Blewett and Litton. Laneside, East Harptree ; *Miss Roper.* Clapton. Yatton ; *W. E. Brown* in *Fl. Som.* Clevedon. Banwell. Churchill. Rowberrow. Murdercombe, near Mells. Great Elm. Beechen Cliff, Bath ; Lansdown and Hinton Abbey ; *Flower* and *Babington* in *Newman's List*.

VAR. **Braunii** *Spenner.*

**S.** Leigh Woods ; *Rev. W. H. Painter* in *Herb. Brit. Mus.* So named by Keller of Prague, as Mr. Druce informs me.

**CYSTOPTERIS** *Bernh.*

**1157. *C. fragilis* Bernh.** *Bladder Fern.*

Native ; on rocks and walls, showing a great partiality for the Carboniferous Limestone. Practically absent from the Gloucestershire division, whilst common about the Mendips.

**G.** Crew's Hole and Hanham ; *T. B. Flower.* Unknown there now. A few plants on a wall between Upton Cheyney and North Stoke, 1878.

**S.** Nightingale Valley, Leigh Woods, very fine ; *Herb. Stephens.* Recorded from this locality also by Dr. Thwaites about 1840, and by Mr. Grindon in 1842. The latter botanist described it as very luxuriant near the foot of the valley. The former sent a packet of specimens to the London Botanical Society, a fact leading one to suppose that the fern was then plentiful. At the present time I much doubt if a single plant exists in Leigh Woods. On a bit of wall between Failand and Charlton House, now I fear extinct ; *D. Williams.* Abundant on Dundry Down prior to 1844 ; *Thwaites* and *Grindon.* Still there, but sparingly,



about ancient quarry pits. Old walling in Bourton Combe. Formerly fine and plentiful under fir-trees near Brockley. Stanton Drew. Stanton Prior; *Rev. S. Browne*. Chew Magna and Bishop Sutton; *D. Fry*. Between Yatton and Congresbury. Ston Easton. Emberrow. Burrington Combe. Cheddar Cliffs, on both sides of the gorge. In crannies of the water-worn rock on Mendip above Draycott. Walls near the Mineries on Mendip. Damp hedge-banks under Dolebury Camp. Of fine growth in East Harptree Combe, especially on piers of the aqueduct. Eaker Hill; Chewton Mendip; Litton and Gurney Slade; *R. V. Sherring*. Ebbor Rocks. Binegar. Croscombe and Dulcot Hill near Wells. Whatley and Mells; *Rev. S. Laing*. Charlcombe Bay, Weston-in-Gordano; *Miss Livett*. "Underneath some projecting rocks on Lansdown, in considerable plenty."—*Rev. L. Blomefield*. Still there in 1907, not far from the Grenville Monument; *Miss Roper*. In old quarries on Hampton Down; rocks above Bathford; and Widcombe Hill; *Fl. Bathon*. Walls at Shepton Mallet; *Fl. Som*.

This fern is subject to much variability in the cutting of the frond and disposition of the clusters. The *var. dentata* Hooker is the most important one with us. It is permanent at Cheddar, whence it has been reported from time to time for more than a century. Sole's "*C. regia*," from the top of the Mendips, was probably this. The Rev. E. S. Marshall tells me it is the only form he finds in the Gorge itself. He has pointed out examples that agree exactly with the figure of *dentata* in Syme's *Engl. Botany*.

### ATHYRIUM *Roth.*

#### 1158. *A. Filix-fœmina* *Roth.* *Lady Fern.*

Native; in damp woods and by streams in shady places; rather common.

June and July.

**G.** Formerly in Stapleton Wood; *Swete, Fl.* Between Over and Almondsbury. Wood by the Frome near Frenchay. Pucklechurch. Dyrham. Tortworth. Dursley.

**S.** Leigh Woods, in several localities; and between Abbotsleigh and Failand. Moist wood, Lower Failand. Bourton Combe. Brockley Combe. Woods between Rhodyate Hill and Wrington. Streamside on the right bank of the Chew, between Pensford and Stanton Drew. Norton's Wood, Clevedon. Between Temple Cloud and Clutton; *D. Fry*. Eaker Hill Wood; *Miss Roper*. Sidcot. Axbridge. The Stoke Lane valley near Edford. Frequent near Bath and Wells.

*A. Filix-fœmina* appears to be generally very variable. A long series of so-called varieties has been described and figured in the works of fern-authors. Of these, two, " $\beta$  and  $\gamma$ ," are mentioned by Flower in *Newman's List* as occurring in North Somerset; and *var. molle* *Roth.* is credited to "Bristol" in *Moore's History*. No distinctly marked forms have come under my notice. The district may not be a favourable one for the study of variations which seem to depend chiefly on degrees of moisture, exposure, elevation, etc.

ASPLENIUM *Linn.*1159. *A. lanceolatum* *Huds.* *Lanceolate Spleenwort.*

Native; on sandstone rock; very rare.

June to September.

**G.** Frome Glen, Stapleton; *Herb. Stephens.* Oldbury Court Woods; and lanes about Stapleton; *Swete, Fl.* Pennant rock, Oldbury Court Woods, 1841; *Thwaites* in *Herb. Watson.*

These records refer to the same locality in the Frome valley where the plant was discovered about 1835 by Mr. J. W. Ewing of Norwich, then residing in this city for a time, who pointed it out to Mr. G. H. K. Thwaites. In the note which Mr. Thwaites published in the *Phytologist*, I, p. 75, he speaks of finding the fern in several spots—abundantly in one of them. Swete confirms this by saying that at his date its area was “not more than half a mile,” implying that it occurred over a considerable space. That the plant was then plentiful is shown by the remark of Mr. E. Newman (*History of British Ferns*, p. 251; 1844). He says:—“*Asplenium lanceolatum*. . . . Pennant rocks near Stapleton. I am indebted to the Botanical Society of London for a very beautiful series of specimens collected in this locality, and Mr. Thwaites has most obligingly sent me his own magnificent specimens for inspection.” A frond mentioned by Thwaites measured eighteen inches. What a pity it is that the herbarium of that keen and careful botanist should have disappeared!

Without doubt extensive gathering took place after publication of the discovery. I was informed by the late Mr. W. W. Stoddart that by 1870 no specimen could be obtained without the aid of a quarryman and a rope. I have myself only seen or heard of *A. lanceolatum* in Glen Frome at one spot, where there are at the present time a very few plants quite out of reach. But I have not been able to satisfy myself that it does *not* grow somewhere else in the vicinity, and I trust that may yet prove to be the case.

This Spleenwort has been several times reported from North Somerset, as in the *Phytologist* for 1860; but I have never seen a Somerset specimen. Nor, I think, had the author of the county *Flora*.

1160. *A. Adiantum-nigrum* *L.* *Black Spleenwort.*

Native; on rocks and walls, and occasionally on hedgebanks; rather common.

June to September.

**G.** Abundant in the neighbourhood of Bristol, 1843; *G. H. K. Thwaites*. No longer so. Under bushes in the Gully, Durdham Down. Blaize Castle Woods; *Herb. Powell*. Henbury. Hanham Woods, 1851; *Herb. Jenyns*. Shaded rocks by the Avon near Hanham, 1907. Old quarry faces in Glen Frome. Almondsbury. Aust. Plentiful on walls and hedgebanks between Milbury Heath and Cromhall. Tortworth. Wickwar. Dursley.

**S.** Leigh Woods, on rocky slopes. Abbotsleigh. Failand. Brislington. Stanton Drew, sparingly; *D. Fry*. Chew Magna, some large plants on a hedgebank. Chelvey. Yatton and Congresbury. Pathsides in Charlton Woods, Portbury. Walton- and Weston-in-Gordano. Clevedon. Very fine about an old limekiln at Hartcliff Rocks near Winford. Sandford. Shipham.



Cheddar Cliffs. Old wall near Holcombe. Rarely near Wells. Weston-super-Mare; *T. B. Flower*. Rocks at Brean Down. Steep Holm. Kelston. South Stoke. Not common near Bath.

This might perhaps have gone into the "common" list. But its preference for limestone gives its distribution a local character.

**1161. *A. Trichomanes* L. Maiden-hair Spleenwort.**

Native; on rocks and walls; rather common.

June to September.

**G.** Westbury-on-Trym. Goram's Chair, Blaize Castle. Stoke Gifford. Kingswood. Siston. Bitton. Frampton Cotterell. Tortworth. Horton.

**S.** Rocks in Leigh Woods. Old walls, Long Ashton. Sparingly at Failand. Brislington. Stanton Drew; Stowey and Chew Magna; *D. Fry*. Clapton. Tickenham. Not common about Clevedon. Walton-in-Gordano. Old mine-shaft on Dolebury. Wrington. Shipham. On Mendip above Axbridge, Cheddar and Draycott. In all the parishes at the back of the Mendips, and often very luxuriant. Fronds a foot in length are not uncommon on rubble walls of the higher ground. Abundant on walls at Wedmore. Stoke Lane, Edford. Wells. Frequent about Bath.

**1162. *A. marinum* L. Sea Spleenwort.**

Native; on maritime rocks; very local.

June to October.

**[G.]** Stated by Swete to have been gathered by Mr. A. Prichard on rocks under the Powder House, Shirehampton. A specimen in the St. Brody collection at Gloucester "reported" from that locality must be disregarded. *A. marinum* has been credited to Gloucestershire in several works on British Ferns, probably on faith in Swete's record. It is not, however, cited for the county in *Topogr. Botany*. The riverside rocks referred to have been carefully searched by myself and others without result.]

**S.** Formerly abundant on the coast south of Portishead; now scarce. I have seen it in several spots, usually concealed in deep chinks and recesses among the rocks, and often out of reach. It grows sparingly and of small size as far north as the Black Nore, whence it was reported at the middle of the last century by J. N. Duck. I have some fronds gathered at Clevedon, July 6, 1842, by Leo H. Grindon, the same day on which he discovered *Schœenus nigricans*. Rocks near Birnbeck Island; *Dr. St. Brody*. In some damp clefts among the rocks between Kewstoke Bay and Birnbeck! *Mrs. Gregory*. On cliffs and in a sea cave at Brean Down, 1881; *T. F. Perkins*; and, 1894; *Miss Gregory*. *Ibid.*; *F. A. Knight*. On the Steep Holm, July, 1773; *Banks and Lightfoot*.

Earliest local record:—"Felix marina Anglica. Dwarf Sea Fern. At Weston-super-Mare in Somersetshire, L. P."—MS. note by Dr. L. Plukenet in his copy of Ray's *Catalogus*, circa 1690.

**1163. *A. Ruta-muraria* L. Wall Rue.**

Native; on rocks and old walls; very common. It is to be seen in the older parts of Clifton; as underneath Royal York Crescent, and on Richmond Terrace.

May to September.

Earliest local records. "*Adiantum album* sive *Ruta muraria* sive *Salvia*

vitæ . . . on the Rockes by Bathe and Bristow."—*Johnson, Merc. Bot.* (1634).

"Ruta muraria sive Salvia vitæ. Wall-rue. . . on the Rockes neare Weston-super-Mare in Somersetshire . . . green in Winter as well as Summer."—*Parkinson, Theatr. Bot.* p. 1050 (1640).

[*A. septentrionale* *Hull* ("Felix saxatilis Tragi") is included in a list of plants observed at Cheddar, July, 1726, by Dillenius when on his journey into Wales. It will, of course, be suggested that this is a mistake. Dillenius may not have been well acquainted with the plant at that time, although he certainly seems to have received Welsh specimens from Samuel Brewer a few months before he set out on this journey, and his general knowledge of Cryptogams was unrivalled. There is no specimen in his herbarium, preserved at Oxford; and no corroboration of the record exists.]

### PHYLLITIS *Hill.*

1164. *P. Scolopendrium* *Greene.* *Scolopendrium vulgare* *Sym.*  
*Hart's-tongue.*

Native; in damp shady places; common. July and August.

Plants bearing fronds bifid, trifid, crisped or contorted in various ways, are occasionally met with.

Thirteen *Scolopendrium* "varieties," in all, were enumerated by Col. A. M. Jones in 1888 as having been found in the Bristol district. Of these the most striking that have come under my notice in the wild state are the following:—

VAR. *crispum.*

G. Near Hanham; *Dr. F. Brittan.*

S. St. Stephen's Hill near Hallatrow "true and constant;" *R. V. Sherring.*  
Hedgebank near East Harptree, 1894!

VAR. *marginatum.*

G. Left bank of the Frome near Fishponds; *R. V. Sherring.*

S. Near Pensford; *Col. A. M. Jones.* Old hedgerow on Mendip above Shipham, 1905! Doultong, on the southern border of the district! *R. V. Sherring.*

This is a very peculiar and interesting variation. The fronds are only about an inch wide, often bifid at the tip, with the margin frilled and showing a distinct seam at the attachment of the frill.

The VAR. *submarginatum*, which can differ but slightly from that just described, appears in a list of Ferns found at Weston-super-Mare and its vicinity in 1861 by Henry Aston Walker. *Phytol. N. S.* vol. VI (1862).

Lobel, on one of his visits to "the very pleasant city of Bristol," about the year 1565, speaks of finding on St. Vincent's Rocks a very curious form of Hart's-tongue of which he gives a long account (*Advers.* p. 359). The plant is figured and described as having very short, cordate triangular fronds of fragile texture; thin, soft and sterile. Lobel sent some roots to London for cultivation, but they did not survive long enough "sed parum diu superstites fuerunt." His Flemish friends, however, considered the fern to be a distinct species. Ray passes over the matter; but Lobel's account seems to have impressed and mystified Parkinson, who gives the Clifton plant a place as "The lesser



Mules Ferne" (*Theatr. Bot.* p. 1047); and comments as follows:—"Lobel saith that he found on Saint Vincents Rocke not farre from Bristow in a hollow cave or hole, a smaller kinde whose leaves exceeded not the breadth of three fingers, nor hard nor rough but smooth and gentle, and without any markes on the backside of them, yet with a hollow roundnesse at the bottome of them, and besides somewhat unevenly dented about the edges: the roots were very small and threaddy, quickly withering. Clusius saith that Lobel having sent him some of those plants, after hee had kept them in a pot two years because of their tendernesse, they changed their forme into the jagged Harts-horne, where-of he much mervailed, for afterwards as he saith when he came into *England*, hee gathered with his owne hands in the same place the like plants, which there held the forme of *Hemionitis*."

Our Rocks, at the present time, do not wear the clothing that met Lobel's eye three and a half centuries ago. Black swans are hardly scarcer on the Avon than are ferns to-day on Clifton Down. Whatever shade-grown plants may have represented at Bristol the "*Hemionitides variantes*" of the *Adversaria*, they have not survived for comparison by us with the southern *S. Hemionitis* Sw.; or with the many sports and variants of our native Hart's-tongue.

Our earliest record will be that of Lobel, above quoted. But the following is of much interest:—"Phyllitis *Ger.* Harts tongue. Millions of it about Bristol in ye Lands and Roads all over."—MS. note by Dr. L. Plukenet in his copy of Ray's *Catalogus*, circa 1690.

Where are those "millions" now? Although ferns stand certainly among plants most easily affected by smoke, building, and the operations and occupations of man generally; and soonest vacate his neighbourhood when he advances upon them; yet there is nothing to-day in the changed environment of, say, St. Vincent's Rocks, to account for the disappearance of that old-time plenteousness of ferns which we read about, save our vastly increased population and the altered conditions under which we live. How few citizens of Bristol could have possessed gardens in the days of Lobelius and Plukenet! The Hart's-tongue might be selected as a good example of "shunners of men." Still, that term is misleading, implying as it does a voluntary retirement or natural decease when threatened by man's approach; whereas the departure is almost entirely due to a mischievous mechanical extirpation. The fact is that few people nowadays can allow a fern to remain undisturbed in a natural locality. The majority will either gather the fronds or dig up the root for garden use. And so the inevitable result is with us. At a sufficient distance from the city, beyond the hawkers' reach—in hollow lanes of the Chew valley for example, or about the Harptrees, or on hedgebanks N.E. of Thornbury; or where protected by enclosure, as on the Blaize Castle estate, we can still compare the normal abundance of this wayside ornament with its scarcity in similar situations near at hand. And thus we can appreciate the extent of damage done by tramps and others, who have long traded their ill-gotten spoils with the suburban gardeners of Bristol.

**CETERACH** Willd.

**1165. C. officinarum** Willd. *Rustyback.*

Native; on rocks, old walls and banks; common. Remarkably plentiful about Bristol, and noted from the earliest times as an unusually prominent feature of our limestone walls. May to October.

**G.** St. Vincent's Rocks, and slopes of the Gully on Durdham Down. Dr. Thwaites distributed specimens from the Rocks through the Botanical Society of London in 1842. It is still there on cliff ledges, though gone from spots within easy reach. Walls about Westbury-on-Trym. Goram's Chair in Henbury Combe. Penpole Point, on rock. Frenchay. Walls by Winterbourne Church. Plentiful on walls near Almondsbury, Olveston and Thornbury. Gaunt's Earthcott, and Frogland Cross, abundant. Yate Rocks. Tortworth. Walls at Wickwar.

**S.** Rocks in Leigh Woods. Walls in the lanes between Abbotsleigh and Failand. Long Ashton. Flax Bourton. Backwell. Clevedon, but not common. Queen Charlton; Stanton Drew; Stowey and Chew Magna; *D. Fry*. Tickenham. Banwell. Congresbury. Fine and plentiful on Churchill Batch. On rock in Burrington Combe; Cheddar Gorge and Ebbor. On Mendip above Sidcot; Axbridge and Draycott. Ston Easton; Compton Martin; and in all the parishes at the back of the Mendips. Walls about Pill and Ham Green. Rocks at Brean Down. Wells. Frequent on walls near Bath.

VAR. **crenatum** Milde.

**G.** Kingsweston; *Col. A. M. Jones*.

**S.** Chewton Mendip, 1907! *R. V. Sherring*.

The remarks of early botanists on their visits to Bristol show that they were impressed by the local abundance of this fern. They came as a rule from Middlesex, where *Ceterach* is unknown.

"Asplenos groweth in England about Bristowe."—*Turner, Herball*, p. 74 (1557).

"This herbe is much found about Welles."—*Lyte*, p. 407 (1578).

"Ceterach groweth upon old stone wals and rocks in darke and shadowie places throughout the west part of Englande; especially upon the stone wals by Bristowe as you go to Saint Vincents Roche, and likewise about Bathe, Wels and Salisburie, where I have seene great plenty thereof."—*Gerard*, p. 979 (1597).

"Ceterach, sive Asplenium et Scolopendria. *Spleenwort or Milkwast*. About St. Vincent's rock among the heaps of stones plentifully; and on many walls about Bristol."—*Ray in Camden's Britannia*, ed. 2, p. 291 (1695). Ray uses nearly the same words in his *Synopsis*.

Specimens from "divers walls about Bristol," gathered in 1731 by Dr. Samuel Dale, the friend and executor of Ray, are in the British Museum Herbarium.

**BLECHNUM** Linn.

**1166. B. Spicant** With. *Hard Fern.*

Native; in stony and heathy ground and upland woods. Rather rare, and



certainly scarcer than formerly in the neighbourhood of the larger towns of the district. It has been completely eradicated from some of its localities. July.

**G.** Glen Frome, 1850; *Herb. Cundall*. Not known there now. Yate Common, in small quantity. Wyck. Formerly abundant in Westridge Wood, Wotton-under-Edge; now scarce; *V. R. Perkins*. Folly Wood, near Dursley.

**S.** In some of the preserved portions of Leigh Woods. St. Anne's Wood, Brislington; *Dr. H. O. Stephens* in *Swete, Fl.* Now gone. Bourton Combe. Sparingly in the sixty-acre plantation that fills a triangular space between Belmont Hill and Failand. By a stream and on high ground in a wood on Failand; *D. Williams*. Goblin Combe; King's Wood; and woods between Clevee and Wrington. Norton's Wood, near Clevedon. Weston Hill; *St. Brody*. Stoke Lane valley; *Miss Livett*. Burrington Combe, scarce. Lower slopes and combes of Blackdown on Mendip. Sparingly in Greyfield Wood, Hallatrow. Eaker Hill Wood; *Miss Roper*. In plenty near Leigh-on-Mendip; *D. Fry*. Downhead Common; Cranmore and Beacon Hill. Sparingly on a stony bank near Wells; *Miss Livett*. Scarce and stunted on Glastonbury Moor; *Fl. Som.* Absent from the vicinity of Bath.

Earliest record:—"Lonchitis altera . . . lyke unto ceterache . . . but greater . . . I have sene ye herbe oft in diverse places of Sommersetshyre."—*Turner, Herb.* ii, p. 41 (1562).

### PTERIS Linn.

#### 1167. *P. aquilina* L. *Brakes or Bracken.*

Native; in woods, and on heaths and commons. Very common, except in the alluvial lowlands. July and August.

As a rule ferns are decidedly sensitive to variation in soil or position. Bracken, on the contrary, seems to be indifferent to such conditions. It abounds on dry elevated moorland as well as in moist deeply shaded coppice. Many years ago I saw a plant of *Pteris* on an old wall near the Tower of London. In 1888 I was a good deal surprised to meet with a large patch flourishing on one of the rubbish-tips in St. Philip's Marsh, Bristol. In 1909 bracken came up strongly on cleared land in the new Kingsway, London. In that instance Covent Garden may have been the source, as the dry fern is commonly used for packing fruit and vegetables.

#### [*Adiantum Capillus-Veneris* L. *Maiden-hair.*

Has been reported from several localities in North Somerset; possibly by mistake in one or two instances, and the fern may have been planted in others. It no longer exists at any of them. Details are given below.

"Under a bridge at Compton Dando, where it had been known some years."—*A report to the Rev. R. P. Murray.*

"At the mouth of an old well near Clevedon."—*Leo H. Grindon*. Quoted in *Cybele Brit.* vol. iii.

"Three plants, growing in the air-shaft of a stone quarry some thirty feet below the ground, at Combe Down near Bath, 1853."—*E. J. Lowe*, in *Phytol.* iv, p. 1100.

"In the year 1851 I found a plant or two of it on moist rocks in the neighbourhood of Cheddar, in an out-of-the-way situation, and left the roots uninjured."—*Rev. W. H. Hawker* in *Phytol.* v, p. 82.]

#### [*Hymenophyllum tunbridgensense* Sm. *Filmy Fern.*

"In a shady lane near Shepton Mallet."—*Sole, MS.* 1782. Unconfirmed.]

## OSMUNDA Linn.

1168. *O. regalis* L. *Royal or Flowering Fern.*

Native; in peat bogs and swamps; very rare.

July and August.

**G.** I understand that this undoubtedly grew years ago in Blaize Castle Woods, by the streamside towards Combe Dingle; and was exterminated by the public before admission to the domain was restricted.

**S.** Formerly in Leigh Woods, according to an old publication (*The West of Engl. Journ. of Science and Literature*). Mr. Flower searched for it seventy years ago without success; and, as he said, there appears to have been no suitable situation for it in Leigh Woods. Is included in the Clevedon List of the Rev. G. W. Braikenridge (1868). And there appears to be no doubt that it grew at one time on the peat of Walton Moor, near Clevedon. A resident lady informed me that she remembered the last two roots being dug up for sale by a Clevedon cabman. A Clevedon Guide for 1878 locates *Osmunda* in the Kingston Seymour marshes. Still frequent on the peat moors of Burtle, Catcott and Shapwick. At one time it extended so far north as Wedmore; but now appears to be confined to swamps on the southern moors. The plant has increasing difficulty in raising its head above the herbage, for stems of any size are quickly pounced upon by the fernists.

## BOTRYCHIUM Sw.

1169. *B. Lunaria* Sw. *Moon-wort.*

Native; on downs, hill-pastures and peaty heaths; rare. May and June.

**G.** Shirehampton; *T. B. Flower* in *Swete, Fl.* Penpole Point, one plant; *W. W. Stoddart*. These doubtless refer to the same locality. Combe Down, Henbury; once only. Kingweston Hill; *Miss Powell*.

**S.** Failand, on the Manor Farm in one spot; *D. Williams*. Pasture on the ridge above Weston-in-Gordano; *A. E. G. Way*. Walton Castle Hill, Clevedon; *T. B. Flower*. Moors, Clevedon, 1883; *W. E. Green*. Callow Hill, Sidcot; *Herb. Stephens*. Eight plants there, 1904; and one in 1908; *Miss Roper*. Wavering Down, above Winscombe. One plant in a field on Tining's Farm near Cheddar, with *Vicia Orobus*, June, 1883; and one at the same place, 1904. Heathy ground by the bogs at the Mineries on Mendip; twenty or thirty plants in some seasons. Brean Down, in fair quantity, 1902 and 1904; *Miss Ruddock* and *Miss Livett*. "On Brean Down the moon-wort is very abundant for a limited period at the end of April and the beginning of May, growing freely even in the paths and sheep tracks, although from its diminutive size it is no doubt often overlooked."—*F. A. Knight*. Peat moor near Shapwick Station; *Mrs. Gregory*. Some plants on a drove near Ashcot Station, 1910; *H. Corder*. Hinton Blewett and Mells; *Fl. Som.* Pen Hill, near Wells. Between Claverton and Bath; *Fl. Bathon. Suppl.* Prior Park, Bath, 1856; *Herb. Jenyns*.

Earliest local record:—"Lunaria or small Moonewort groweth . . . about Bathe in Somersetshire in manie places" . . . *Gerard*, p. 329 (1597).



Great medicinal virtues were ascribed in olden times to Ferns. The frond-segments of *Botrychium* bear a resemblance to certain phases of the moon, and as that satellite was considered to have great influence on human affairs in the days of magic and witchcraft, the superstitious and credulous were wont to gather the *Moon Fern* by *moonlight*, as they considered the herb would then be more potent, and its wonderful virtues enhanced. Not only did such persons endeavour to deceive others, but were themselves deceived into a belief that strange things would be brought about by peculiar plants picked at the *right time*. In this enlightened age we have ourselves been told that if we wished to hoard apples, we must be sure to take them off the trees at the rise of the moon ! \*

Jacobus de Manlis relates :—"Some of the moderns state, that in St. John's night some go to the place where the Fern rises and there stand for three hours, and say that within that time the Fern bears flower after seed. *Deus melius scit.*"

And shrewd, hard-headed old Parkinson knew better. He wrote in 1640 (*Theatr. Bot.* p. 508) :—"It hath been formerly related by impostors and false knaves, and is yet believed by many, that it will loosen locks, fetters, and shoes from those horses' feet that goe in the places where it groweth ; and have been so audacious as to contest with those that have contradicted them, that they have both known and seen it to do so. But what observation soever such persons doe make, it is all but false suggestions and mere lyes."

## OPHIOGLOSSUM Linn.

### 1170. *O. vulgatum* L. *Adder's-tongue*.

Native ; in meadows, orchards, and on grassy roadsides. Common, and more frequent than is often supposed, though as it grows in scattered patches it needs some looking for. May and June.

**G.** In marshy fields under Ashley Hill, and near the Duchess Ponds, Stapleton. Frome Glen ; *Swete, Fl.* Frenchay. Blaize Castle Woods ; *Herb. Powell.* Field behind the Henbury Cottages ; *Miss Roper.* Boggy field at Compton Greenfield ; *Id.* Abundant in meadows by Spaniorum Hill and Hallen. Haw Wood and Berwick Wood, in open spots, 1890 and subsequently. Filton Meads. Stoke Gifford ; *S. Freeman* in *Phytol.* I, p. 328 (1841). In the park at Over Court ; *R. C. Cann Lippincott.* Upland pastures between Alveston and Itchington, in more plenty than I have ever seen it elsewhere. Thornbury. The Golden Valley below Wyck. Enclosed common-land north of Yate. Abundant in a wood of willows and poplars near Cromhall ; *F. Samson.* Meadows at Hillsley ; *Id.* Grassy drove in the Lower Woods, Wickwar ; *Mrs. Woodford.* Field by Nunnery Lane, Dursley ; *Miss Gingell.*

**S.** Roman encampment, Leigh Wood. Roadside bank near the Abbot's Pond. Pastures on Failand. Ashton Hill, below the Tump ; *Miss Ruddock.* Brislington ; *Dr. C. F. Fox* in *Swete, Fl.* Plentiful in fields between the

\* *The Ferns of the Axe.* By the Rev. Z. J. Edwards, M.A. London. 1862.

Bridgwater Road and Dundry Hill. Yatton, on a railway bank; *F. J. Stone*. Clevedon; *W. E. Green*. Slopes of Stantonbury. Fields at Breach Hill, near Chew Stoke; *D. Fry*. Frequent in ill-drained meadows between Farrington Gurney and Hinton Blewett. Cameley; *F. Samson*. Compton Martin. Orchards at Winscombe; *Theo. Compton*. In the wood far up in Cheddar Gorge. Frequent in pastures on the Mendips. Thickets near Worle Lodge; *St. Brody*. On the hill at Kewstoke Gate; *T. F. Perkins*. Whatley and Mells; *Rev. S. Laing*. Pastures near Wells; *Miss Livett*. On the peat moor towards Meare; *Thos. Clark*. Very fine on the peat by Shapwick Road, 1906. Frequent about Bath; *Fl. Bathon*.

Plants bearing two fertile spikes on one frond are persistent on Pur Down near Stapleton! *H. J. Wadlow*.

It is almost impossible, with any knowledge of the plant, to miss this on suitable ground in this district, though I know that botanists are in the habit of treating it as a rarity. An old friend goes so far as to say that she can find it in any cowslip field!

The old English name for this fern was "nedder's-tongue" or "naddyrwort." In the fifteenth century it lost its original form and the initial *n* through an erroneous division of a *naddyr* into an *addy*. Apron, orange and umpire are given as other instances of English words that have lost their initial letter.

## LYCOPODIACEÆ.

LYCOPODIUM *Linn.*1171. *L. clavatum* *L.* *Stag's-horn Moss.*

Native; on moorland and heathy ground; very rare. July and August.

**G.** Furze Hill near Dursley, 1869; *Herb. St. Brody*.

**S.** In open ground on one of the Clevedon hills! Stated in the *Phytologist* to have been abundant at Clevedon towards the beginning of the last century; and is still existing in fair quantity. Observed by Mr. David Fry in three distinct spots. Blackdown on Mendip, under bracken; a large patch in fine fruit, 1896; *Miss Gregory*. Again seen in 1908. And in 1911! *F. Samson*. Information gleaned from fern-cutters and commoners makes it appear that the plant occurs on the northern slopes of Blackdown in at least four places, all very difficult to find without assistance.

1172. *L. Selago* *L.* *Fir Club-moss.*

Native; at Clevedon with the last species. A single plant was found by Mr. Mason in 1884 and shown to Mr. D. Fry and myself. *L. Selago* has several stations in West Somerset.

[*Pilularia globulifera* *L.* *Pillwort.*

Somerset Coal Canal, at Monckton Combe; *H. F. Parsons* in *Fl. Som.* I have no other information.]



## CHARACEÆ \*

NITELLA *Agardh.*1173. *N. opaca* *Ag.*

Native; in ponds; very rare.

May and June.

**G.** In three ponds on Yate Common: discovered March, 1910 by Mr. C. Bucknall. Pond, Berkeley, July, 1868, confirmed by Messrs. H. and J. Groves; *Herb. St. Brody.*

The Yate Common plant perfects its fruit, falls to pieces, and disappears by the middle of June.

CHARA *Linn.*1174. *C. vulgaris* *L.* *C. foetida* *Braun.*

Native; in stagnant water; rather common.

June, July.

**G.** Quarry pools, Eastfield, Westbury-on-Trym. Duchess Ponds, Stapleton. Ponds, Durdham Down and Shirehampton; *Swete, Fl.* Siston, 1882; *Dr. Hassé.* Still there in a field-pond near Siston Court, 1910; *C. Bucknall.* Pasture pool on Goose-green Farm, north of Yate!

**S.** Pond between Bedminster and Whitechurch, 1882. Ponds under Dundry Hill, 1886. Moor ditches, Yatton. Ditch by the Channel near Portbury. Weston-in-Gordano. Clevedon; *D. Fry.* Quarry pool, Hartcliff Rocks! *Miss Roper.* Pools among the sand-hills near Brean and Berrow. Burnham; *W. B. Waterfall.* Peat moors; Edington and Shapwick. Old coal canal, Camerton. Midford Ponds; *Rev. L. Blomefield.*

VAR. *longibracteata* *Kütz.*

**S.** Pond between Bedminster and Whitechurch; *W. B. Waterfall.* Peat ditches on the moors near Edington and Ashcot.

In *C. vulgaris* the bracts of the barren branches are often long enough to simulate this variety, while those on the fertile branches may be of normal length.

VAR. *papillata* *Wallr.* *C. decipiens* *Desv.*

**G.** Pool in ground that had been worked for strontia at the back of Goose-green Farm, N. of Yate, 1910.

**S.** Between Portbury and Portishead, 1889! Abundant in peat ditches of the Walton valley; named by Messrs. H. and J. Groves. Tickenham Moor. Peat ditch near Shapwick Station. Ponds in Prior Park, Bath.

1175. *C. contraria* *A. Br.*

Native; very rare.

June.

**S.** Stagnant water in a portion of the abandoned coal canal where it is crossed by the Radstock road near Dunkerton. Unknown in the district or in the county until detected by Mr. C. Bucknall and the author in June, 1910. Full of fruit where exposed to the sun in shallow water: of longer growth, darker-tinted and less fertile in a deeper shaded pool. Fresh specimens forwarded at the time to Messrs. H. and J. Groves were unreservedly accepted as

\* See *Journ. Bot.* 1880, for a *Review of the British Characeæ*, by H. and J. Groves, with plates.

a first record for Somerset, but others from the same gathering that were sent in the dried state to the Bot. Exchange Club were corrected to *C. vulgaris* var. *longibracteata* (Report, 1910). The main difference between *contraria* and *vulgaris* rests on the relative position of the primary cortical cells, which in the former are more prominent than the secondary ones, whilst in the latter they are less prominent. In the Dunkerton plant the series of cortical cells were almost equally prominent; and Messrs. Groves write that such intermediate forms are not uncommon. In all cases this character is indistinct except in the fresh plant, as the cells collapse on drying; a fact that may sufficiently account for the discrepancy above mentioned.

**1176. *C. hispida* L.**

Native; in pools and ditches; rare and local.

June.

**S.** Walton-in-Gordano; *J. W. Hooker* in *Herb. Kew.* Rather plentiful in ditches below Weston-in-Gordano. Kenn Moor, 1904! Between Yatton and Clevedon. Portbury; *W. E. Green.* In the canal; *Fl. Bathon. Suppl.*

I now think that the plants named *C. aspera* in my earlier book should have been placed here.

**1177. *C. polyacantha* Braun.**

Native; in pools and ditches; very rare.

June.

**S.** Pond near the railway by Nailsea Station, 1880; *A. Leipner* and *E. H. Read.* Peat ditches on Walton Moor, 1903 etc.

On specimens distributed through the Bot. Exch. Club in 1904, Messrs. Bennett and Groves remarked that the growth was very small compared with that met with in the Broadlands of Norfolk and Cambs. where it forms masses dense enough to stop the passage of a boat. But the Walton ditches have rarely more than a foot of water in them, and they are raked out at short intervals, so that vegetation has little chance of becoming large.

**1178. *C. fragilis* Desv.**

Native; in ponds and ditches; rather rare.

June to August.

**S.** Near Clevedon, in brackish water, 1883; *W. Joshua* (*Journ. Bot.* 1886). Nailsea Moor. Kenn Moor. In the canal basins; *Fl. Bathon. Suppl.*

var. *capillacea* Thuill.

**S.** Ditches on Walton Moor, 1902 and subsequently. Pits on the peat between Ashcot and Shapwick Stations.

var. *delicatula* Braun.

**G.** Yate Common. Large colliery pond at the Frog Lane Pit, Coalpit Heath; and in a stream running therefrom by Ox Bridge on the Yate road. Old clay pits in a field between Rangeworthy and Wickwar; and in another pool nearer the Midland line a mile east of Rangeworthy. Pond in a pasture on Goose-green Farm, north of Yate.

On the Coalpit Heath plant Messrs. H. and J. Groves reported that it was not in good state, and might possibly be the var. *Hedwigii*.



## ADDITIONS

Page 67; line 12, *add* 'March, 1912. There have now been brought to light, from the stores of the Bristol Museum, some bound volumes of specimens and of exquisite drawings in water-colour; all of Jamaican plants, and dated 1786 to 1790. These are known to have formed part of the Broughton bequest.'

---

Page 263; after line 27, *insert*

'VAR. *sciaphila* *Zimmerer*.

Whole plant smaller and more compact; radical leaves small and nearly orbicular, of three or four broadly wedge-shaped leaflets.

**S.** Rough, peaty pasture near Walton-in-Gordano; August, 1911! *Miss Roper*.'

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